

TOWN OF COLCHESTER

Request for Proposal

**IRRIGATION DESIGN AND INSTALLATION
AT COLCHESTER REC PLEX**

Due May 9, 2022, at 2:00 p.m.

Bid #2022-004

127 Norwich Avenue
Colchester, Connecticut. 06415
(860) 537-7200

BACKGROUND

The Town of Colchester is soliciting Proposals from qualified irrigation installation contractors (Vendors) to design and install an irrigation system for 7 ball fields at the Colchester RecPlex, as detailed in this Request for Proposals (RFP).

The selected Vendor will be required to coordinate the installation with the Parks and Recreation and the Water Departments to limit the disruption to the community sports leagues.

SCOPE OF WORK

Selected Vendor will be responsible for the design, provision, and installation of the irrigation system for 7 ball fields at the Colchester RecPlex.

LOCATION

Colchester RecPlex,
215 Old Hebron Road
Colchester CT 06415

REQUIREMENTS

Vendors and their contractor(s) must be prepared to comply with all state, federal and local requirements. Vendors are responsible for verifying site conditions. No allowances will be made if a Vendor fails to adequately examine a location before submitting a Proposal. All equipment shall be installed by a factory trained, insured, and certified installer.

Following installation, a full and thorough audit of all newly installed equipment will be performed. The Vendor will be required to address and resolve any identified deficiencies within five (5) days of notification of the deficiencies by the Town.

BIDS

Bid Documents shall be enclosed in a sealed envelope addressed to the Colchester First Selectman and clearly marked “**SEALED BID – Irrigation Design and Installation at Colchester RecPlex 2022-004**” along with the name of Bidder, date, and time of bid opening in order to guard against premature opening of the bid.

PRE-BID SITE VISIT

Site visit will be held for any interested Vendor. Vendors are encouraged to review site conditions to familiarize themselves with the fields and the park area. Vendors may visit the site independently or attend the pre-bid site visit on Tuesday, April 26, 2022 at 10:00 at the RecPlex.

PROPOSAL PROCESS

The proposal process will consist of a written proposal, which shall include the following items:

1. An introduction containing the following information:
 - a. A complete description of capability and history of the contractor.
 - b. History of similar projects completed within the last three years, including cost and client contact information.
 - c. A brief description of the proposed schedule including how the project would be organized.
 - d. A list of sub-contractors to be used on the project
2. A list of not less than three (3) references including product or service provided, name of agency, contact person, phone number and/or e-mail.
3. Identify any state contract numbers or certifications. Such pricing is to be incorporated in the cost proposal(s).
4. Proposal Summary Form (Attachment 2)
5. Irrigation design proposal. For each design proposal, provide the following:
 - a. A scaled site plan showing the proposed equipment and installation.
 - b. Drawings and manufacturer’s printed literature and specifications for each item or component being proposed.
 - c. A detailed breakdown of cost including, but not limited to:
 - i. Design
 - ii. Equipment (inclusive of all structures, components, signage, hardware, equipment manuals and operations manuals)
 - iii. Installation

- iv. Any other equipment-related improvements necessary to complete the project.
 - d. Manufacturer warranties.
 - e. Proof of Manufacturer's Product Liability Insurance
 - f. Proof of installer certification and insurance
6. Anticipated lead time for equipment construction and delivery.

BID SECURITY

Each Bid must be accompanied by a surety bond in the amount of 5% of the total of the Bid with the forms supplied by the Vender. A certified check will not be acceptable. Bid security of the successful Bidder will be retained until such Bidder has executed the Agreement, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. The Bid security of other Bidders whom Vender believes to have a reasonable chance of receiving the award may be retained by Vender until the earlier of the seventh day after the Effective Date of the Agreement or the sixty-first day after Bid opening, whereupon the Bid security furnished by such Bidders will be returned. Bid security with Bids which are not competitive will be returned within seven (7) days of Bid opening.

SECURITY FOR FAITHFUL PERFORMANCE

In addition to the Agreement, a successful Bidder shall also provide, within the time stipulated, a Construction Performance Bond by a company satisfactory to the Vender in an amount equal to One Hundred Percent (100%) of Estimated Total Contract Price recorded in the Proposal section of the Contract as executed, and a Construction Payment Bond in like amount will be required from the successful Bidder for faithful performance of the Contract.

PROPOSAL SUBMITTAL

By submitting a Proposal pursuant to this RFP, Vendor is indicating willingness to enter into the Agreement in the form attached to this RFP and is agreeing to furnish the insurance certificates and endorsements as required by the Agreement and this RFP. Furthermore, Vendor is deemed to have provided its assurance that it is able to meet the insurance requirements described in the Agreement. Bidder understands that failure to sign the Agreement and/or provide the insurance certificates and endorsements will cause Town to terminate the bid award.

EVALUATION OF PROPOSALS

The Planning, Parks and Recreation and Water departments may review the written proposals and determine the top Vendor(s). The proposed irrigation systems will be evaluated separately, and final proposal rankings developed separately. Evaluation of the proposals will be conducted, based on the following:

- Responsiveness to the RFP and the criteria
- Proposed site design and installation
- Ability to meet established budgets
- Ability to put together a design and construction plan to perform all aspects of the project, possess appropriate certifications, licenses, and meet insurance requirements.

Based on the proposal evaluations, the Town staff will make Vendor recommendation(s) to the Town of Colchester Board of Selectman. The Board of Selectman will make the final determination and select the Vendor for this project. Upon acceptance, the Town reserves the right to make minor changes to the selected design within the project scope and budget.

OTHER CONSIDERATIONS

This RFP does not commit the Town of Colchester to award a contract, to defray any costs incurred in the preparation of a proposal pursuant to this RFP, or to procure or contract for work. No payment of any kind will be provided to a Vendor for responding to this RFP. The Town is not bound to select any of the Vendors submitting proposals, and may, at its discretion, waive any irregularities in Proposals and their submittal. The Town reserves the right to reject any or all proposals, and to reissue the RFP in part or in its entirety.

The Town reserves the right to cancel or modify, for any or no reason, in part or in its entirety, this RFP including, but not limited to, selection schedule, submittal date, and submittal requirements, without prior notice. Notification of revisions to the RFP will be made by addendum posted on the bid webpage.

The Town reserves the right to verify the information received in the Proposal. If a Vendor knowingly and willfully submits false information or data, the Town reserves the right to reject that Proposal. If it is determined that a contract was awarded as a result of false statements or other data submitted in response to this RFP, the Town reserves the right to terminate the contract. The Town reserves the right to request additional information at any time from any and all Vendors which the Town deems necessary to evaluate Proposals.

All documentation and materials submitted in response to this RFP, will remain the property of the Town and will become a public record subject to the requirements of the State of Connecticut.

PROPOSAL DEADLINE

The deadline for receiving proposals is **2:00 p.m. on May 9, 2022**. Proposals must be marked "**RFP- Irrigation Design and Installation at Colchester RecPlex-2022-004**" and be submitted in a sealed envelope as outlined below, prior to the proposal deadline. Proposals should be signed by an authorized individual to bind the firm and must be valid for at least 90 days. Please submit proposals to:

Town of Colchester
Office of the First Selectman
127 Norwich Ave.
Colchester, CT 06415

TENTATIVE SCHEDULE

- Request for Proposals released April 11, 2022
- Proposals Due May 9, 2022, 2:00p.m.
- Tentative Contract award May 2022

*Vendor agrees to hold equipment and upon notification from Town Representative, coordinate delivery and installation of equipment at specified location undergoing site improvements. The date(s) for the installation of the irrigation equipment will be determined by the Town. **Vendor is to coordinate activities to ensure that ball field closures have the least possible impact on the local sports leagues.** Once installation is ordered by the Town, Vendor shall have two (2) weeks to deliver and begin installation.

ADDITIONAL INFORMATION

All requests for clarification or additional information must be submitted in writing via e- mail to the Town's Recreation Director, Tiffany Quinn at tquinn@colchesterct.gov or the Town Engineer, Sal Tassone at townengineer@colchesterct.gov.

Telephone communication with Town staff is not encouraged, and the Town is not bound by any clarifications, interpretations, corrections, or changes to the RFP that are made verbally or in any manner other than by written addendum. Interpretation or correction of the RFP will be made by addendum posted on the Town website and any addendum will be considered a part of the RFP and will be incorporated therein.

ATTACHMENTS

Attachment 1 – Design Criteria for Irrigation at Colchester RecPlex

Attachment 2 – Proposal Summary Form

Attachment 3 – Sample Agreement

Attachment 4- Insurance Requirements

Attachment 5- General Conditions

Attachment 6- Technical Specifications

ATTACHMENT 1

DESIGN CRITERIA FOR IRRIGATION DESIGN & INSTALLATION

Location: COLCHESTER RECPLEX
Address: 215 OLD HEBRON RD., COLCHESTER CT 06416

General Information:

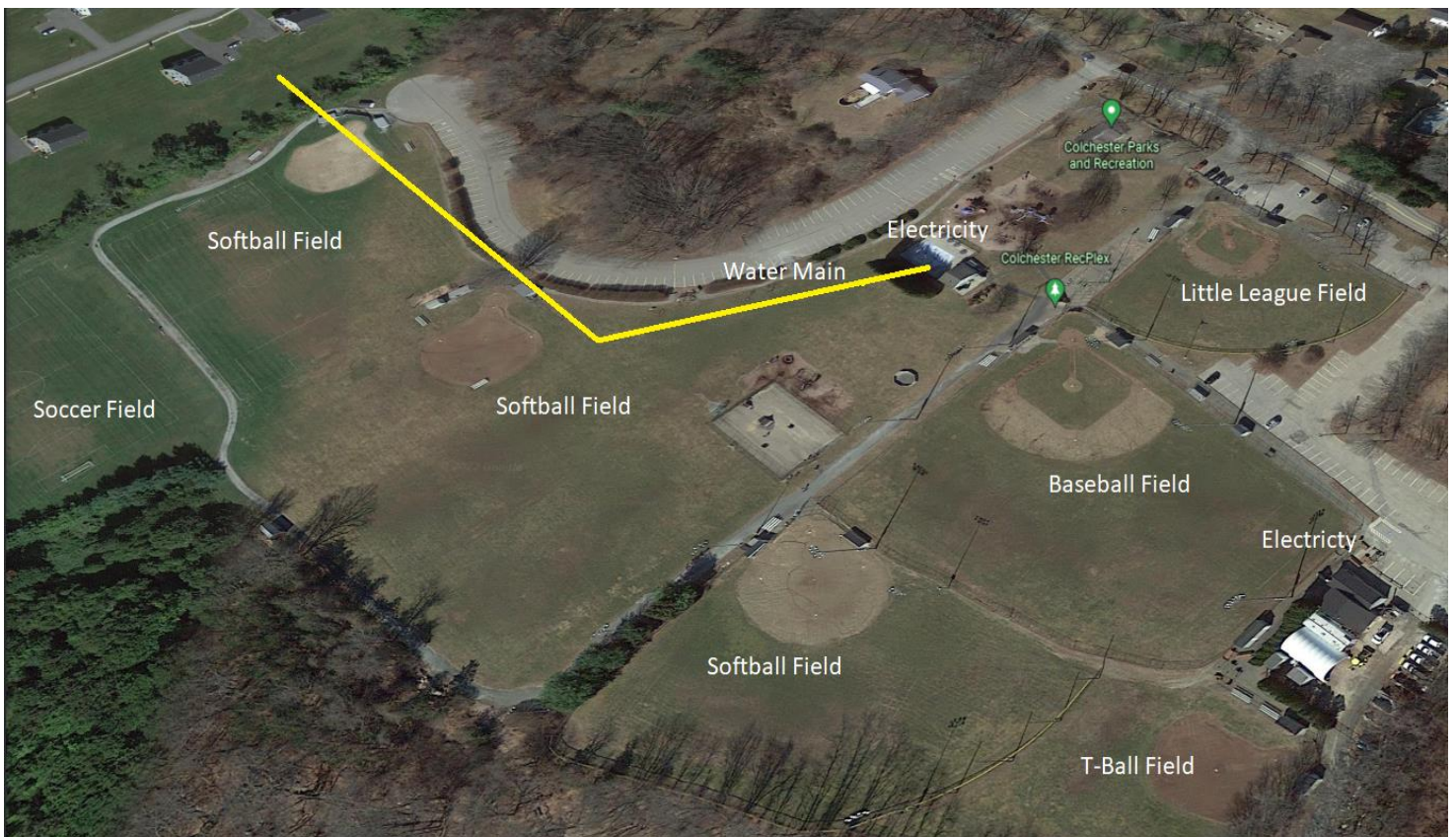
The "RecPlex," is the main location for recreation activities in Colchester. These facilities include a picnic pavilion, splashpad, walking path, concession stand, bath house, 8 ball fields that include baseball, softball, soccer and football, and a playground.

Electricity: Power is available from the Bathhouse or the Public Works building on opposite sides of the baseball field.

Water Source: The city water main has been installed from Natures Ave., along the parking lot and is connected to the bathhouse.

Coordination with Town of Colchester:

The selected Vendor will be required to provide the Town with a delivery and installation schedule



**ATTACHMENT 2
PROPOSAL SUMMARY**

**Location: Colchester RecPlex
215 Old Hebron Rd.,
Colchester CT 06415**

Total Cost:

Include detailed breakdown of cost including, but not limited to:

- Design
- Equipment (inclusive of all structures, components, signage, hardware, equipment manuals and operations manuals)
- Installation
- Any other equipment-related improvements necessary to complete the project.

ATTACHMENT 3
SAMPLE AGREEMENT DOCUMENTS
AGREEMENT BETWEEN THE TOWN OF COLCHESTER AND
_____, FOR IRRIGATION DESIGN AND INSTALLATION

THIS AGREEMENT, executed as of this _____ day of _____, 2022, between the Town of COLCHESTER, a municipal corporation ("Town") and _____, a ("Contractor"). In consideration of the mutual covenants and conditions set forth herein, the parties agree as follows:

WHEREAS, the Town has the need for construction services related to design and installation of an irrigation system at the Colchester RecPlex; and

WHEREAS, the Contractor specializes in providing such services and has the proper work experience, certifications, licenses, and background to carry out the duties involved; and

WHEREAS, on _____, 2022, the Board of Selectman of the Town of COLCHESTER authorized the First Selectman to enter into this Agreement after public bidding in accordance with the Town purchasing policy.

NOW, THEREFORE, in consideration of the mutual covenants, benefits, and premises herein stated, the parties hereto agree as follows:

1. TERM

The term of the Agreement shall be from the date of execution until completion of the work identified in the Scope of Services and in conformance with Attachments unless this Agreement is terminated or suspended consistent with Section 6 of this Agreement.

2. SCOPE OF SERVICES

Town does hereby retain Contractor in a contractual capacity to provide construction services related to design and installation of irrigation equipment at Colchester RecPlex as set forth in Attachment 1, Contractor's Bid Proposal, dated _____, which is attached hereto and incorporated herein by this reference as though set forth in full and hereinafter referred to as the "Proposal", Bid Documents, attached hereto and incorporated herein by this reference as "Bid Documents". Where said Scope of Services as set forth are modified by this Agreement, or in the event there is a conflict between the provisions of said Scope of Services and this Agreement, the language contained in this Agreement shall take precedence.

Contractor shall perform the tasks described and set forth in Attachment 1. Contractor shall complete the tasks according to the schedule of performance which is also set forth in Attachment 1. Compensation for the services to be performed by Contractor shall be in accordance with Attachment 2. Compensation shall not exceed the rates or total value of _____ dollars (\$XXX,XXX) as stated in Attachment 2, without a written amendment to the agreement executed by both parties. Payment by Town to Contractor shall be as referred to in this Agreement.

Town and Contractor acknowledge that this project is a public work to which prevailing wages apply, and that a public work project is subject to compliance monitoring and enforcement. For every subcontractor who will perform work on this project, Contractor shall be responsible for subcontractor's compliance and Contractor shall take all necessary actions to ensure subcontractor's compliance.

3. PERFORMANCE

Contractor shall at all times faithfully, competently, and to the best of Contractor's ability, experience, and talent, perform all tasks described herein. Contractor shall employ, at a minimum, generally accepted standards and practices utilized by persons engaged in providing similar services as are required of Contractor hereunder in meeting its obligations under this Agreement.

4. MANAGEMENT

The individual directly responsible for Contractor's overall performance of the Agreement provisions herein above set forth and to serve as principal liaison between Town and Contractor shall be _____, and no other individual may be substituted without the prior written approval of the First Selectman. The Town's contact person in charge of administration of this Agreement, and to serve as principal liaison between Contractor and Town, shall be the First Selectman, or their designee.

5. PAYMENT

The Town agrees to pay Contractor in accordance with the terms and the schedule of payment as set forth in Attachment 2, attached hereto and incorporated herein by this reference as though set forth in full, based upon actual time spent on the above tasks. This amount shall not exceed _____ dollars (\$XXX,XXX) for the total term of the Agreement unless additional payment is approved as provided in this Agreement.

Contractor shall not be compensated for any additional services rendered in connection with its performance of this Agreement, unless such additional services and compensation are authorized, in advance, in a written amendment to this Agreement executed by both parties.

6. TERMINATION OR SUSPENSION WITHOUT CAUSE

The Town may at any time, for any reason, with or without cause, suspend, or terminate this Agreement, or any portion hereof, by serving upon the Contractor at least ten (10) days prior written notice. Upon receipt of said notice, the Contractor shall immediately cease all work under this Agreement, unless the notice provides otherwise. If the Town suspends or terminates a portion of this Agreement such suspension or termination shall not make void or invalidate the remainder of this Agreement.

The Contractor may terminate this Agreement only by providing Town with written notice no less than thirty (30) days in advance of such termination. In the event of such termination, Contractor shall be compensated for such services up to the date of termination. Such compensation for work in progress shall be prorated as to the percentage of progress completed at the date of termination.

7. DEFAULT OF CONTRACTOR

The Contractor's failure to comply with the provisions of this Agreement shall constitute a default. In the event that Contractor is in default for cause under the terms of this Agreement, Town shall have no obligation or duty to continue compensating Contractor for any work performed after the date of default and can terminate this Agreement immediately by written notice to the Contractor. If such failure by the Contractor to make progress in the performance of work hereunder arises out of causes beyond the Contractor's control, and without fault or negligence of the Contractor, it shall not be considered a default.

If the First Selectman or the First Selectman's designee determines that the Contractor is in default in the performance of any of the terms or conditions of this Agreement, he/she shall

cause to be served upon the Contractor a written notice of the default. The Contractor shall have five (5) working days after service upon it of said notice in which to cure the default by rendering a satisfactory performance. In the event that the Contractor fails to cure its default within such period of time, the Town shall have the right, notwithstanding any other provision of this Agreement, to terminate this Agreement without further notice and without prejudice to any other remedy to which it may be entitled at law, in equity or under this Agreement.

8. OWNERSHIP OF DOCUMENTS

Contractor shall maintain complete and accurate records with respect to sales, costs, expenses, receipts, and other such information required by Town that relate to the performance of services under this Agreement. Contractor shall maintain adequate records of services provided in sufficient detail to permit an evaluation of services. All such records shall be maintained in accordance with generally accepted accounting principles and shall be clearly identified and readily accessible. Contractor shall provide free access to the representatives of Town or its designees at reasonable times to such books and records; shall give the Town the right to examine and audit said books and records; shall permit Town to make transcripts therefrom as necessary; and shall allow inspection of all work, data, documents, proceedings, and activities related to this Agreement. Notification of audit shall be provided at least thirty (30) days before any such audit is conducted. Such records, together with supporting documents, shall be maintained for a period of ten (10) years after receipt of final payment.

Upon completion of, or in the event of termination or suspension of this Agreement, all original documents, designs, drawings, maps, models, computer files, surveys, notes, and other documents prepared in the course of providing the services to be performed pursuant to this Agreement shall become the sole property of the Town and may be used, reused, or otherwise disposed of by the Town without the permission of the Contractor. With respect to computer files, Contractor shall make available to the Town, at the Contractor's office and upon reasonable written request by the Town, the necessary computer software and hardware for purposes of accessing, compiling, transferring, and printing computer files.

9. INDEMNIFICATION AND HOLD HARMLESS

To the extent provided by law, the Contractor shall indemnify, defend with legal counsel approved by Town, and hold harmless Town, its officers, officials, employees, and volunteers from and against all liability, loss, damage, expense, cost (including without limitation reasonable legal counsels' fees, expert fees and all other costs and fees of litigation) of every nature arising out of or in connection with Contractor's negligence, recklessness, or willful misconduct in the performance of work hereunder or its failure to comply with any of its obligations contained in this Agreement, except such loss or damage which is caused by the sole or active negligence or willful misconduct of the Town. Should conflict of interest principles preclude a single legal counsel from representing both Town and Contractor, or should Town otherwise find Contractor's legal counsel unacceptable, then Contractor shall reimburse the Town its costs of defense, including without limitation reasonable legal counsels' fees, expert fees and all other costs and fees of litigation. The Contractor shall promptly pay any final judgment rendered against the Town (and its officers, officials, employees, and volunteers) with respect to claims determined by a trier of fact to have been the result of the Contractor's negligent, reckless, or wrongful performance. It is expressly understood and agreed that the foregoing provisions are intended to be as broad and inclusive as is permitted by the law of the state of Connecticut and will survive termination of this Agreement.

Contractor obligations under this section apply regardless of whether or not such claim, charge, damage, demand, action, proceeding, loss, stop notice, cost, expense, judgment, civil fine or penalty, or liability was caused in part or contributed to by an Indemnitee. However, without affecting the rights of Town under any provision of this agreement, Contractor shall not be required to indemnify and hold harmless Town for liability attributable to the active negligence of Town, provided such active negligence is determined by agreement between the parties or by the findings of a court of competent jurisdiction. In instances where Town is shown to have been actively negligent and where Town active negligence accounts for only a percentage of the liability involved, the obligation of Contractor will be for that entire portion or percentage of liability not attributable to the active negligence of Town.

Contractor agrees to obtain executed indemnity agreements with provisions identical to those set forth here in this Section from each and every subcontractor or any other person or entity involved by, for, with, or on behalf of Contractor in the performance of this Agreement. In the event Contractor fails to obtain such indemnity obligations from others as required here, Contractor agrees to be fully responsible according to the terms of this Section.

Failure of Town to monitor compliance with these requirements imposes no additional obligations on Town and will in no way act as a waiver of any rights hereunder. This obligation to indemnify and defend Town as set forth here is binding on the successors, assigns, or heirs of Contractor and shall survive the termination of this Agreement or Section.

This Indemnity shall survive termination of the Agreement or Final Payment hereunder. This Indemnity is in addition to any other rights or remedies that the Indemnitees may have under the law or under any other Contract Documents or Agreements. In the event of any claim or demand made against any party which is entitled to be indemnified hereunder, Town may, in its sole discretion, reserve, retain, or apply any monies to the Contractor under this Agreement for the purpose of resolving such claims; provided, however, Town may release such funds if the Contractor provides Town with reasonable assurance of protection of the Indemnitees' interests. Town shall, in its sole discretion, determine whether such assurances are reasonable.

10. INSURANCE

Contractor shall maintain prior to the beginning of and for the duration of this Agreement insurance coverage as specified in Exhibit A attached hereto and incorporated herein by this reference as though set forth in full.

11. INDEPENDENT CONTRACTOR

Contractor is and shall at all times remain as to the Town a wholly independent Contractor. The personnel performing the services under this Agreement on behalf of Contractor shall at all times be under Contractor's exclusive direction and control. Neither Town nor any of its officers, employees, or agents shall have control over the conduct of Contractor or any of Contractor's officers, employees, or agents, except as set forth in this Agreement. Contractor shall not at any time or in any manner represent that it or any of its officers, employees, or agents are in any manner officers, employees, or agents of the Town. Contractor shall not incur or have the power to incur any debt, obligation, or liability against Town, or bind Town in any manner.

No employee benefits shall be available to Contractor in connection with the performance of this Agreement. Except for the fees paid to Contractor as provided in the Agreement, Town shall not pay salaries, wages, or other compensation to Contractor for performing services hereunder for Town. Town shall not be liable for compensation or indemnification to Contractor for injury or sickness arising out of performing services hereunder.

12. LEGAL RESPONSIBILITIES

The Contractor shall keep itself informed of local, state, and federal laws and regulations which in any manner affect those employed by it or in any way affect the performance of its service pursuant to this Agreement. The Contractor shall at all times observe and comply with all such laws and regulations, including but not limited to the Americans with Disabilities Act and Occupational Safety and Health Administration laws and regulations.

13. ANTI DISCRIMINATION

Neither the Contractor, nor any subcontractor under the Contractor, shall discriminate in employment of persons upon the work because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, sexual orientation, or military and veteran status of such person; or any other basis protected by applicable federal, state, or local law, except as provided in Section 12940 of the Government Code. The Contractor shall have responsibility for compliance with this Section, if applicable [Labor Code Section 1735].

14. UNDUE INFLUENCE

Contractor declares and warrants that no undue influence or pressure is used against or in concert with any officer or employee of the Town in connection with the award, terms, or implementation of this Agreement, including any method of coercion, confidential financial arrangement, or financial inducement. No officer or employee of the Town will receive compensation, directly or indirectly from Contractor, or any officer, employee, or agent of Contractor, in connection with the award of this Agreement or any work to be conducted as a result of this Agreement. Violation of this Section shall be a material breach of this Agreement entitling the Town to any and all remedies at law or in equity.

15. NO BENEFIT TO ARISE TO LOCAL EMPLOYEES

No member, officer, or employee of the Town, or their designees or agents, and no public official who exercises authority over or responsibilities with respect to the Project during his/her tenure or for one (1) year thereafter, shall have any interest, direct or indirect, in any agreement or sub-agreement, or the proceeds thereof, for work to be performed in connection with the Project performed under this Agreement.

16. CONFLICT OF INTEREST

Contractor covenants that neither they nor any officer or principal of their firm have any interests, nor shall they acquire any interest, directly or indirectly, which will conflict in any manner or degree with the performance of their services hereunder. Contractor further covenants that in the performance of this Agreement, they shall employ no person having such interest as an officer, employee, agent, or subcontractor. Contractor further covenants that Contractor has not contracted with nor is performing any services directly or indirectly, with the developer(s) and/or property Vender(s) and/or firm(s) and/or partnership(s) and/or public agency(ies) owning property and/or processing an entitlement application for property in the Town or its Area of Interest, now or within the past one (1) year, and further covenants and agrees that Contractor and/or its subcontractors shall provide no service or enter into any contract with any developer(s) and/or property Vender(s) and/or firm(s) and/or partnership(s) and/or public agency(ies) owning property and/or processing an entitlement application for property in the Town or its Area of Interest, while under contract with the Town and for a one (1) year time period following termination of this Agreement.

17. NOTICE

Any notice to be given pursuant to this Agreement shall be in writing, and all such notices and any other document to be delivered shall be delivered by personal service or by deposit in the United States mail, certified or registered, return receipt requested, with postage prepaid, and addressed to the party for whom intended as follows:

To: First Selectman
Town of Colchester
127 Norwich Ave
Colchester, CT 06415

Either party may, from time to time, by written notice to the other, designate a different address or contact person, which shall be substituted for the one above specified. Notices, payments, and other documents shall be deemed delivered upon receipt by personal service or as of the third (3rd) day after deposit in the United States mail.

18. CHANGE IN NAME

Should a change be contemplated in the name or nature of the Contractor's legal entity, the Contractor shall first notify the Town in order that proper steps may be taken to have the change reflected in the Agreement documents.

19. ASSIGNMENT

Contractor shall not assign this Agreement or any of the rights, duties, or obligations hereunder. It is understood and acknowledged by the parties that Contractor is uniquely qualified to perform the services provided for in this Agreement.

20. LICENSES

At all times during the term of this Agreement, Contractor shall have in full force and effect, all licenses and certifications required of it by law for the performance of the services in this Agreement.

21. PERMITS

The CONTRACTOR must obtain all necessary permits.

22. VENUE AND GOVERNING LAW

This Agreement is made, entered into, and executed in New London County, CT and any action filed in any court or for arbitration for the interpretation, enforcement or other action of the terms, conditions, or covenants referred to herein shall be filed in the applicable court in New London, CT county. The Town and Contractor understand and agree that the laws of the state of Connecticut shall govern the rights, obligations, duties, and liabilities of the parties to this Agreement and also govern the interpretation of this Agreement.

23. ENTIRE AGREEMENT

This Agreement contains the entire understanding between the parties relating to the obligations of the parties described in this Agreement. All prior or contemporaneous agreements, understandings, representations, and statements, oral or written, are merged into this Agreement and shall be of no further force or effect. Each party is entering into this Agreement based solely upon the representations set forth herein and upon each party's own independent investigation of any and all facts such party deems material.

24. CAPTIONS OR HEADINGS

The captions and headings of the various Articles, Paragraphs, Sections, and Exhibits of this Agreement are for convenience and identification only and shall not be deemed to limit or define the content of the respective Articles, Paragraphs, Sections, and Exhibits hereof.

25. AMENDMENTS

Any amendment, modification, or variation from the terms of this Agreement shall be in writing and shall be effective only upon approval by both parties to this Agreement.

26. TIME OF COMPLETION

Town and Contractor agree that time is of the essence in this Agreement. Town and Contractor further agree that Contractor's failure to perform on or at the times set forth in this Agreement will damage and injure Town, but the extent of such damage and injury is difficult or speculative to ascertain. Consequently, Town and Contractor agree that any failure to perform by Contractor at or within the times set forth herein shall result in liquidated damages as defined in this Agreement for each and every day such performance is late. Town and Contractor agree that such sum is reasonable and fair.

27. CLEANING

Cleaning shall be conducted during progress of work and at the completion of the work. It is the Contractor's responsibility to remove construction debris from the site and to obtain waste receptacles as required. Cleaning and disposal operations are to comply with codes, ordinances, regulations, and antipollution laws. If the Contractor fails to clean up during construction or at the completion of the work, the Town may do so, and the cost thereof shall be charged to the contractor.

28. WORK AREA

Construction will be confined to the immediate Work area only. Trespass on property other than Town property or easements acquired by the Town for the project will be by written permission of the property owner only.

29. PRESERVING AND PROTECTING NEIGHBORING SITES

All neighboring sites are to be preserved and protected by the Contractor during the entire duration of the construction process. The Town reserves the right to stop the work at any time it feels correct measures are not being employed to protect neighboring sites. The Contractor will be notified to resume work after the necessary revisions are made.

30. PRECEDENCE

Contractor is bound by the contents of Town's Bid Package and Proposal, Exhibit attached hereto and incorporated herein by this reference as though set forth in full. In the event of conflict, the requirements of the Town's Bid Package and this Agreement shall take precedence over those contained in the Proposal.

31. INTERPRETATION OF AGREEMENT

Should interpretation of this Agreement, or any portion thereof, be necessary, it is deemed that this Agreement was prepared by the parties jointly and equally and shall not be interpreted against either party on the ground that the party prepared the Agreement or caused it to be prepared.

32. WAIVER

No waiver of any provision of this Agreement shall be deemed, or shall constitute, a waiver of any other provision, whether or not similar, nor shall any such waiver constitute a continuing or subsequent waiver of the same provision. No waiver shall be binding unless executed in writing by the party making the waiver.

33. AUTHORITY TO EXECUTE

The person or persons executing this Agreement on behalf of the Contractor warrants and represents that he/she has the authority to execute this Agreement on behalf of the Contractor and has the authority to bind Contractor to the performance of obligations hereunder.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed the day and year first above written.

Andreas Bisbikos, First Selectman

Date

CONTRACTOR

Print Name, Title

Attest:

ATTACHMENT 4 INSURANCE REQUIREMENTS

Prior to the beginning of and throughout the duration of the Work, Contractor will maintain insurance in conformance with the requirements set forth below. Contractor will use existing coverage to comply with these requirements. If that existing coverage does not meet the requirements set forth here, it will be amended to do so. Contractor acknowledges that the insurance coverage and policy limits set forth in this section constitute the minimum amount of coverage required. Any insurance proceeds available to Town in excess of the limits and coverage required in this Agreement and which is applicable to a given loss, will be available to the Town.

Contractor shall provide the following types and amounts of insurance:

Commercial General Liability

Commercial General Liability Insurance shall be provided by an Insurance Services Office "Commercial General Liability" policy form CG 00 01 or the exact equivalent. The Town of Colchester shall be named as additional insured. Defense costs must be paid in addition to limits. There shall be no cross-liability exclusion for claims or suits by one insured against another. Employers' liability limits shall be no less than \$500,000 bodily injury per each accident, \$500,000 bodily injury by disease for each employee, \$500,000 bodily injury disease aggregate. Per project aggregate shall apply.

Contractor's policy shall contain no endorsements limiting coverage beyond the basic policy coverage grant for any of the following:

- a. Explosion, collapse, or underground hazard (XCU)
- b. Products and completed operations
- c. Pollution liability
- d. Contractual liability

Coverage shall be applicable to Town for injury to employees of contractors, subcontractors, or others involved in the project. Policy shall be endorsed to provide a separate limit applicable to this project.

Workers' Compensation

Workers' Compensation insurance shall be provided on a state-approved policy form providing statutory benefits as required by law with employers' liability limits no less than \$500,000 bodily injury for each accident, \$500,000 bodily injury by disease for each employee, \$500,000 bodily injury disease aggregate.

Business Auto Coverage

Business Auto Coverage or the exact equivalent shall be provided. Limits shall be no less than \$1,000,000 per accident, combined single limit. If Contractor owns no vehicles, this requirement may be satisfied by a non-owned auto endorsement to the

general liability policy described above. If Contractor or Contractor's employees will use personal autos in any way on this project, Contractor shall provide evidence of personal auto liability coverage for each such person.

Excess or Umbrella Liability

Excess or Umbrella Liability insurance (Over Primary) if used to meet limit requirements, shall provide coverage at least as broad as specified for the underlying coverages. Minimum coverage limit of \$2,000,000 per occurrence, \$2,000,000 annual aggregate to apply. Coverage shall be provided on a "pay on behalf" basis, with defense costs payable in addition to policy limits. There shall be no cross-liability exclusion precluding coverage for claims or suits by one insured against another. Coverage shall be applicable to Town for injury to employees of contractor, subcontractors, or others involved in the Work. The scope of coverage provided is subject to the approval of Town following receipt of proof of insurance as required herein. Limits are subject to review.

Insurance procured pursuant to these requirements shall be written by insurers that are admitted carriers in the state of Connecticut and with A.M. Best rating of A- or better and a minimum financial size of VII.

Contractor and Town agree as follows:

1. Contractor agrees to endorse the third-party general liability coverage required herein to include as additional insureds Town, its officials, employees, agents, using standard ISO endorsement No. CG 2010 with an edition date prior to 1992. Contractor also agrees to require all contractors, subcontractors, and anyone else involved in any way with the project contemplated by this Agreement to do likewise.
2. Any waiver of subrogation expressed or implied on the part of the Town to any party involved in this Agreement or related documents applies only to the extent of insurance proceeds actually paid. Town, having required that it be named as an additional insured to all insurance coverage required herein, expressly retains the right to subrogate against any party for sums not paid by insurance. For its part, Contractor agrees to waive subrogation rights against Town regardless of the applicability of any insurance proceeds, and to require all contractors, subcontractors, or others involved in any way with the project contemplated by this Agreement to do likewise.
3. All insurance coverage maintained or procured by Contractor or required of others by Contractor pursuant to this Agreement shall be endorsed to delete the subrogation condition as to the Town, or to specifically allow Contractor or others providing insurance herein to waive subrogation prior to a loss. This endorsement shall be obtained regardless of existing policy wording that may appear to allow such waivers.
4. It is agreed by Contractor and Town that insurance provided pursuant to these

requirements is not intended by any party to be limited to providing coverage for the vicarious liability of Town, or to the supervisory role, if any, of Town. All insurance coverage provided pursuant to this or any other Agreement (express or implied) in any way relating to Town is intended to apply to the full extent of the policies involved. Nothing referred to here or contained in any agreement involving Town in relation to the project contemplated by this Agreement is intended to be construed to limit the application of insurance coverage in any way.

5. None of the coverages required herein will be in compliance with these requirements if they include any limiting endorsement of any kind that has not been first submitted to Town and approved of in writing.
6. All coverage types and limits required are subject to approval, modification, and additional requirements by the Town, as the need arises. Contractor shall not make any reductions in scope of coverage (e.g. elimination of contractual liability or reduction of discover period) that may affect Town's protection without Town's prior written consent.
7. Proof of compliance with these insurance requirements, consisting of binders of coverage, or endorsements, or certificates of insurance, shall be delivered to Town at or prior to the execution of this Agreement. In the event such proof of insurance is not delivered as required, or in the event such insurance is canceled or reduced at any time and no replacement coverage is provided, Town has the right, but not the duty, to obtain any insurance it deems necessary to protect its interests under this or any other Agreement and to pay the premium. Any premium so paid by Town shall be charged to and promptly paid by Contractor or deducted from sums due Contractor, at Town option.
8. Contractor agrees to endorse, and to required others to endorse, the insurance provided pursuant to these requirements, to require 30 days' notice to Town and the appropriate tender prior to cancellation or reduction of such liability coverage and notice of any material alteration or non-renewal of any such coverage, and to require contractors, subcontractors, and any other party in any way involved with the project contemplated by this Agreement to do likewise.
9. It is acknowledged by the parties of this Agreement that all insurance coverage required to be provided by Contractor or any subcontractor, and any other party involved with the project who is brought onto or involved in the project by Contractor, is intended to apply first and on a primary non-contributing basis in relation to any other insurance or self-insurance available to the Town.
10. Contractor agrees to ensure that subcontractors, and any other party involved with the project who is brought onto or involved in the project by Contractor, provide the same minimum insurance coverage required of Contractor. Contractor agrees to monitor and review all such coverage and assumes all

responsibility for ensuring that such coverage is provided in conformity with the requirements of this Agreement. Contractor agrees that upon request, all agreements with subcontractors and others engaged in this project will be submitted to Town for review.

11. Contractor agrees not to self-insure or to use any self-insured retentions or deductibles on any portion of the insurance required herein and further agrees that it will not allow any contractor, subcontractor, architect, engineer, or other entity or person in any way involved in the performance of Work on the project contemplated by this Agreement to self-insure its obligations to Town. If Contractor's existing coverage includes a deductible or self-insured retention, the deductible or self-insured retention must be declared to the Town. At that time the Town shall review options with the Contractor, which may include reduction or elimination of the deductible or self-insured retention, substitution of other coverage, or other solutions.
12. The Town reserves the right at any time during the term of this Agreement to change the amounts and types of insurance required by giving the Contractor 90 days advance written notice of such change. If such change results in substantial additional cost to the Contractor, the Town will negotiate additional compensation proportional to the increased benefit to Town.
13. For purposes of applying insurance coverage only, all contracts pertaining to the project will be deemed to be executed when finalized and any activity commences in furtherance of performance under this Agreement.
14. Contractor acknowledges and agrees that any actual or alleged failure on the part of Town to inform Contractor of non-compliance with any insurance requirement in no way imposes any additional obligations on Town nor does it waive any rights hereunder in this or any other regard.
15. Contractor will renew the required coverage annually as long as Town, or its employees or agents face an exposure from operations of any type of pursuance to this Agreement. This obligation applies whether or not the Agreement is canceled or terminated for any reason. The insurance shall include but not be limited to products and completed operations and discontinued operations, where applicable. Termination of this obligation is not effective until Town executes a written statement to that effect.
16. Contractor agrees to waive its statutory immunity under any workers' compensation statute or similar statute, in relation to the Town, and to require all subcontractors and any other person or entity involved in the project contemplated by this Agreement to do likewise.

17. Requirements of specific coverage features are not intended as limitations on other requirements or as a waiver of any coverage normally provided by any given policy. Specific reference to a given coverage feature is for purposes of clarification only as it pertains to a given issue and is not intended by any party or insured to be all-inclusive.
18. Any provision in any of the construction documents dealing with the insurance coverage provided pursuant to these requirements, is subordinate to and superseded by the requirements contained herein. These insurance requirements are intended to be separate and distinct from any other provision in this Agreement and are intended by the parties to be interpreted as such.
19. All liability coverage provided according to these requirements must be endorsed to provide a separate aggregate limit for the project that is the subject of this Agreement and evidencing products and completed operations coverage for not less than two years after issuance of a final certificate of occupancy by all appropriate government agencies or acceptance of the completed work by Town.
20. Contractor agrees to be responsible for ensuring that no contract used by any party involved in any way with the project reserves the right to charge Town or Contractor for the cost of additional insurance coverage required by this Agreement. Any such provisions are to be deleted with reference to Town. It is not the intent of Town to reimburse any third party for the cost of complying with these requirements. There shall be no recourse against Town for payment of premiums or other amounts with respect thereto.
21. Contractor agrees to obtain and provide to Town a copy of Professional Liability coverage for Architects or Engineers on this project, when required by Town. Town shall determine the liability limit.
22. Contractor shall be responsible for builders' risk insurance coverage for the project materials until accepted by the Town. Payment of premiums and deductibles shall be the responsibility of the Contractor.

Attachment 5 General Conditions

1. Town Representation
2. Engineering
3. Contract Drawings, Maps and Specifications
4. Utility Relocation
5. Test Pits
6. Explosives
7. Dust Control
8. Pre-Construction Meeting
9. Construction Meetings
10. Quantities
11. Differing Site Conditions
12. Reports
13. Eliminated Items
14. Work Stoppages
15. Traffic Control
16. Protection of Existing Vegetation, Structures, Equipment, Utilities & Improvements
17. Progress Payments
18. General Guaranty
19. Daily Clean Up
20. Nondiscrimination
21. Field Closings
22. Extra Work
23. Samples
24. Quality of Equipment and Materials
25. Shop or Setting Drawings
26. Plans & Specifications at the Site
27. Materials, Services and Facilities
28. CONTRACTOR's Title to Materials
29. Inspection of Construction
30. Inspection and Testing of Materials
31. CONTRACTOR's Obligation
32. Weather Conditions
33. List of Utilities in the Area
34. Change Orders
35. OSHA Violations
36. Provisions Required by Law Deemed Inserted
37. Right of the Town to Terminate Contract
38. Acceptance of Final Payment Constitutes Release

39. Assignments
40. Codes, Regulations and Issue Date of Standard Specifications
41. Emergency Telephone Number
42. Other Contracts
43. The Town's Duties and Rights
44. Wage Rates
45. Contract Bid Breakdown (Lump Sum)
46. Hours of Work
47. Waste Disposal
48. Enumeration of Contract Drawings, Specifications, Appendices and Addenda
49. Lock-Out Tag-Out Standard
50. Hazard Communication

1. TOWN REPRESENTATION

The Town will be represented at all times by the Director of Parks and Recreation or an authorized representative. They shall have the responsibility and authority for the interpretation of the Contract, its specifications, and drawings.

2. ENGINEERING

All field engineering and inspection shall be provided by the Town of Colchester. No field changes shall be allowed without specific notification of and approval by the Town.

3. CONTRACT DRAWINGS, MAPS AND SPECIFICATIONS

- a. Omissions from the drawings or specifications or the mis-description of details of Work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the CONTRACTOR from performing such omitted or mis-described details of the Work but they shall be performed as if fully and correctly set forth and described in the drawings and specifications.
- b. The CONTRACTOR shall check all drawings furnished to him immediately upon their receipt and shall promptly notify the Town of any discrepancies. Figures marked on drawings shall in general be followed in preference to scale measurements. The CONTRACTOR shall compare all drawings and verify the figures before laying out the Work and will be responsible for any errors which might have been avoided thereby.
- c. Any discrepancies found between the Drawings and Specifications and site conditions or any errors or omissions in the Drawings or Specifications shall be immediately reported to the Director of Parks and Recreation in writing, who shall promptly correct such error or omission in writing. Any Work done by the CONTRACTOR after his discovery of such discrepancies, errors or omissions without notifying the Director of Parks and Recreation shall be done at the CONTRACTOR'S risk.
- d. Further instructions may be issued by the Director of Parks and Recreation during the progress of the Work by means of Drawings or oral or written instruction to make more clear or specific the Drawings and Specifications or as may be necessary to explain or illustrate changes in the Work to be done. The CONTRACTOR shall carry out the Work in accordance with the additional Drawings and instructions.

4. UTILITY RELOCATION

All temporary utility relocations encountered shall be the responsibility of the CONTRACTOR and all labor and materials shall be included in his general expense. All permanent utility relocations listed on the drawings or as directed by the Town shall be paid for by the Town.

5. TEST PITS

At locations shown on the plans or designated by the Town, the CONTRACTOR shall

excavate and expose existing utilities and other structures prior to start of construction. Elevations and locations and other pertinent data of the exposed utilities and other structures are to be recorded and forwarded to the Town.

6. EXPLOSIVES

Explosives shall not be used for rock excavation.

7. DUST CONTROL

Calcium Chloride shall be used as directed. Maximum application shall be at a rate one pound per square yard. Water vehicles may also be used as deemed necessary.

The CONTRACTOR shall erect temporary dust curtains/walls so that no dust or debris shall enter the adjoining areas.

8. PRE-CONSTRUCTION MEETING

The Town will conduct a pre-construction meeting with the selected CONTRACTOR. The purpose of the meeting will be to answer any questions the CONTRACTOR may have about scheduling, the scope of Work, the methods of Work to be applied, and/or other technical or contractual issues.

9. CONSTRUCTION MEETINGS

To enable orderly review during progress of the Work and to provide for systematic discussion of problems, the Town will conduct project meetings throughout the construction period. Persons designated by the CONTRACTOR to attend and participate in the project meetings shall have all required authority to commit the CONTRACTOR to solutions agreed upon in the project meetings.

10. QUANTITIES

The estimated quantities of Work to be done and materials to be furnished under this Contract, are provided only for use in comparing bids and to indicate the approximate total amount of the Contract.

11. DIFFERING SITE CONDITIONS

a. The CONTRACTOR shall promptly, and before the conditions are disturbed, give a written notice to the Town of:

i. Subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and provided for in the Contract.

ii. The Town shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the CONTRACTOR's cost of, or the time required for, performing any part of the Work under this Contract, whether or not changes as a result of the conditions, an

equitable adjustment shall be made under this clause and the contract modified in writing accordingly.

- b. No request by the CONTRACTOR for an equitable adjustment to the contract under this clause shall be allowed, unless the CONTRACTOR has given the written notice required.
- c. No request by the CONTRACTOR for an equitable adjustment to the Contract for differing site conditions shall be allowed if made after final payment under this contract.

12. REPORTS

The CONTRACTOR and each of his subcontractors shall submit to the Town, such schedules of quantities and costs, progress reports, payrolls, estimates, delivery tickets and other data as the Town may request.

13. ELIMINATED ITEMS

Should any items contained in the proposal be found unnecessary for the proper completion of the contracted Work, or if due to over expenditure on other contract items; the Town may eliminate certain items from the Contract. Such action shall in no way invalidate the Contract and no allowance will be made for such items in making final payment except for such Work already completed or materials previously purchased for those items.

14. WORK STOPPAGES

Should the Town be prevented or enjoined from proceeding with Work either before or after the start of construction by reason of any litigation or other reason beyond the control of the Town, the CONTRACTOR shall not be entitled to or assert claim for damage by reason of said delay. However, time for completion of the Work will be extended to such reasonable time as the Town may determine. Such time extension will be set forth in writing.

15. TRAFFIC CONTROL

The CONTRACTOR will furnish and pay for traffic control men to direct and control traffic in the immediate construction area. The CONTRACTOR will be responsible for maintenance of adequate barricades, signs, and warning systems to protect the job and the traveling public. Use of uniformed police or traffic control personnel will in no way relieve the CONTRACTOR of his responsibility for traffic accidents caused by his failure to provide adequate barricades, signs, and warning devices.

16. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements

- a. The CONTRACTOR shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the Work site, which are not to be removed and which do not unreasonably interfere with the Work required under this contract. The CONTRACTOR shall only remove trees when specifically authorized to do so and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless

operation of equipment, or by Workmen, the CONTRACTOR shall trim those limbs or branches with a clean cut.

- b. The CONTRACTOR shall protect from damage all existing improvements and utilities (1) at or near the Work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the CONTRACTOR. The CONTRACTOR shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the Work. If the CONTRACTOR fails or refuses to repair the damage promptly, the Town may have the necessary Work performed and charge the cost to the CONTRACTOR.

17. PROGRESS PAYMENTS

On the first of each month but not more than once each month, the CONTRACTOR may submit a Request for Payment for Work done. The CONTRACTOR shall furnish the TOWN all reasonable facilities required for obtaining the necessary information relative to the progress and execution of the Work. He must, if requested by the Town, submit satisfactory evidence that he has paid in full for all labor, materials, and equipment included in the monthly estimate. The estimates shall be made on forms furnished by the Town and the CONTRACTOR shall certify that the estimate is correct, and the Work performed is in conformity with the plans and specifications.

Within thirty (30) days from the date of approval of a Request for Payment by the TOWN, the TOWN shall:

- a. Pay the Request for Payment as approved less a five percent (5%) retainage.
- b. Approve such other amount as he shall decide is due the CONTRACTOR, informing the CONTRACTOR in writing of his reasons for approving the amended amount, or
- c. Withhold payment in whole or in part on an approved Request for Payment to the extent necessary to protect itself from loss on account of any of the following causes discovered subsequent to approval of Request for Payment by the TOWN provided he informs the CONTRACTOR in writing of his reasons for withholding payment in whole or in part:
 - i. Defective Work.
 - ii. Evidence indicating the probable filing of claims by other parties against the CONTRACTOR.
 - iii. Failure of the CONTRACTOR to make payments to SUBCONTRACTORS, material suppliers or labor.
 - iv. Damage to another CONTRACTOR.

After completion of the project and acceptance by the Town, the CONTRACTOR shall submit an itemized final estimate. No later than six (6) months after acceptance of the final estimate, the Town shall pay the 5% retained, unless, within that time, the materials or Workmanship in the project have been found defective. The CONTRACTOR agrees that

the TOWN may expend the same in making such repairs or replacements of said Work as the TOWN may deem expedient upon proper notification in writing to the CONTRACTOR.

18. GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the contract documents, nor partial or entire occupancy of the premises by the Town, shall constitute an acceptance of Work not done in accordance with the contract documents or relieve the CONTRACTOR of liability in respect to any express warranties or responsibility for faulty materials or Workmanship. The CONTRACTOR shall remedy any defects in the Work and pay for any damage to other Work resulting therefrom. The Town will give notice of observed defects with reasonable promptness.

19. DAILY CLEAN-UP

Before the completion of each day's Work, the CONTRACTOR shall be responsible for cleaning up and removing or relocating all excavated material, debris, equipment and like and for temporary backfilling or filling excavations as necessary to ensure the continuous flow of traffic in roadways where Work is progressing including access to private property during non-Working hours.

20. NONDISCRIMINATION

Discrimination is prohibited under this contract.

No person in the United States shall, on the ground of race, color, national origin, or sex, be excluded from participation under any program or activity of a recipient government which government receives funds made available under Subtitle A of the State and Local Fiscal Assistance Act of 1972. Any prohibition against discrimination on the basis of age under the Age Discrimination Act of 1975 (hereinafter referred to as discrimination on the basis of age) or with respect to an otherwise qualified handicapped individual as provided in section 504 of the Rehabilitation Act of 1973, (hereinafter referred to as discrimination on the basis of handicapped status) or any prohibition against discrimination on the basis of religion, as well as any exemption from such prohibition as provided in the Civil Rights Act of 1964 or the Civil Rights Act of 1968 (hereinafter referred to as discrimination on the basis of religion) shall also apply to any such program or activity. All of subpart E of "Regulations governing the Payment of Entitlements under Title I of the State and Local Fiscal Assistance Act of 1972" as Amended by the State and Local Fiscal Assistance Amendments of 1976 applies.

The Town of Colchester does not discriminate against individuals with disabilities as provided in the Americans with Disabilities Act (ADA). The Town expects that the vendors and/or CONTRACTORS with whom it does business will comply with the American with Disabilities Act to the extent required by law. If awarded a contract with the Town, the successful vendor/CONTRACTOR will be required to sign a statement agreeing to comply with the provisions of ADA.

21. FIELD CLOSURES

In certain cases when it is deemed necessary for the protection of the public, the Recreation Director MAY officially close a field for a specified period of time. Prior to closing in accordance with this paragraph, notifications shall be posted at the park by the CONTRACTOR, approved by the TOWN, and suitable signs erected. unaffected fields shall be maintained for public use. Access to all park areas shall remain accessible at all times for emergency vehicles.

22. EXTRA WORK

The CONTRACTOR shall be responsible for performing any extra Work, as requested by the Town, made necessary by changes in plan or required to fulfill the scope of the project. Such Work shall be performed by the CONTRACTOR at the unit or lump sum price provided in the Contract.

23. QUALITY OF EQUIPMENT AND MATERIALS

- a. Everything furnished and provided shall be new, and all materials and equipment shall be of the quality specified. All unspecified materials and equipment shall be equal in grade and quality to specified materials. The CONTRACTOR shall furnish satisfactory evidence as to the kind and quality of all materials.
- b. In order to establish standards of quality, the TOWN may have, in the detailed Specifications, referred to certain products by name and catalog number. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers where fully suitable in design.
- c. The CONTRACTOR shall abide by the TOWN'S judgment when proposed substitute materials or items of equipment are judged to be unacceptable and shall furnish the specified materials or items of equipment in such cases. All proposals for substitutions shall be submitted in writing by the General CONTRACTOR and not by individual trades or material suppliers. The TOWN will approve or disapprove proposed substitutions in writing within a reasonable time. No substitute materials shall be used unless approved in writing.

24. SHOP OR SETTING DRAWINGS

The CONTRACTOR shall submit promptly to the Town two copies of each shop or setting drawing prepared in accordance with the schedule predetermined as aforesaid. After examination of such drawings by the Town and the return thereof, the CONTRACTOR shall make such corrections to the drawings as have been indicated and shall furnish the Town with two corrected copies. If requested by the Town, the CONTRACTOR must furnish additional copies. Regardless of corrections made in, or approval given to, such drawings by the Town, the CONTRACTOR will nevertheless be responsible for the accuracy of such drawings and for their conformity to the Plans and Specifications, unless he notifies the Town in writing of any deviations at the time, he furnishes such drawings.

25. PLANS AND SPECIFICATIONS AT THE SITE

The CONTRACTOR shall maintain at the Work Site, one copy of all Drawings, Specifications,

Addenda, approved Shop Drawings, Change Orders and other modifications, Schedules, Instructions, etc. in good order and marked to record all changes made during construction. These shall be available at all times to the Town or his authorized representatives.

26. MATERIALS, SERVICES, AND FACILITIES

It is understood that except as otherwise specifically stated in the contract documents, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to execute, complete, and deliver the Work within the specified time.

27. CONTRACTOR'S TITLE TO MATERIALS

No materials or supplies for the Work shall be purchased by the CONTRACTOR or by any Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The CONTRACTOR warrants that he has good title to all materials and supplies used by him in the Work, free from all liens, claims or encumbrances.

28. INSPECTION OF CONSTRUCTION

- a. Definition. "Work" includes, but is not limited to materials, Workmanship, and manufacture and fabrication of components.
- b. The CONTRACTOR shall maintain an adequate inspection system and perform such inspections as will ensure that the Work called for by this contract conforms to contract requirements. The CONTRACTOR shall maintain complete inspection records and make them available to the Town. All Work is subject to inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.
- c. Town inspections and tests are for the sole benefit of the Town and do not:
 - i. Relieve the CONTRACTOR of responsibility for providing adequate quality control measures.
 - ii. Relieve the CONTRACTOR of responsibility for damage to or loss of the material before acceptance.
 - iii. Constitute or imply acceptance.
- d. The presence or absence of a Town inspector does not relieve the CONTRACTOR from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Town's written authorization.

29. INSPECTION AND TESTING OF MATERIALS

- a. All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with accepted standards. The laboratory or inspection agency shall be selected by the Town.

The Town will pay for all laboratory inspection service direct, and not as a part of the Contract.

- b. Materials of construction, particularly those upon which the strength and durability of the structure may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for uses intended.

30. CONTRACTOR'S OBLIGATIONS

The CONTRACTOR shall and will, in good Workmanlike manner, do and perform all Work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise specified, necessary or proper.

31. WEATHER CONDITIONS

In the event of temporary suspension of Work, or during the inclement weather, or whenever the Town shall direct, the CONTRACTOR will, and will cause his Subcontractors to protect carefully his and their Work and materials against damage or injury from the weather. If, in the opinion of the Town, any Work or materials shall have been damaged or injured by reason of failure on the part of the CONTRACTOR or any of his Subcontractors so to protect his Work, such materials shall be removed and replaced at the expense of the CONTRACTOR.

32. LIST OF UTILITIES IN THE AREA

Attention is called to the fact that the following Utility Companies have facilities in the area:

- Colchester Sewer and Water Department
- Eversource

Information and data reflected in the Contract Documents with respect to Underground Facilities at or contiguous to the site is based upon information and data furnished to Town by Towns of such Underground Facilities or others, and Town does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.

The CONTRACTOR should acquaint himself with and adhere to the regulations of those utilities which are in the area of this Contract.

When requested by the CONTRACTOR, all underground utilities will be located and marked on the surface by the controlling utility company at no cost to him. CONTRACTOR will be responsible for notifying the Utility clearinghouse, "Call-Before-You-Dig" 48 hours prior to any excavation, to allow for the location of the existing utilities by controlling Utility Company.

33. CHANGE ORDERS

Any deviations from, additions to, or deductions from either scope of Work or contract price shall be submitted by the CONTRACTOR to the Town in the form of a contract change order. The Director of Parks and Recreation must approve this contract change order

before said deviations, additions, or deductions shall be enacted. Further, all changes in scope of Work involving unit price items shall be governed by the unit price indicated by the CONTRACTOR on the Base Bid Form.

34. OSHA VIOLATIONS

In accordance with Connecticut General Statute Section 31-57b, no contract shall be awarded to a bidder if it is determined that the bidder (person or firm) has been cited for three (3) or more willful or serious violations of any occupational safety and health act or of any standard, order or regulation promulgated pursuant to such act during the three (3) year period preceding the date of bid opening.

35. PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required bylaw to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if, through mistake or otherwise, any such provision is not inserted, or is not correctly inserted, then upon the application of either party the contract shall forthwith be physically amended to make such insertion or correction.

36. RIGHT OF THE TOWN TO TERMINATE CONTRACT

In the event that any of the provisions of this contract are violated by the CONTRACTOR, or by any of his subcontractors, the Town may serve written notice upon the CONTRACTOR and the Surety of its intention to terminate the Contract, such notices to contain the reasons for such intention to terminate the contract, and unless within (10) days after the serving of such notice upon the CONTRACTOR, such violation or delay shall cease and satisfactory arrangement of correction to be made, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the Town shall immediately serve notice thereof upon the Surety and the CONTRACTOR and the Surety shall have the right to take over and perform the contract; provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the Town may take over the Work and prosecute the same to completion by contract or by force account for the account and at the expense of the CONTRACTOR and the CONTRACTOR and his Surety shall be liable to the Town for any excess cost occasioned the Town thereby; and in such event the Town may take possession of and utilize in completing the Work, such materials, appliances, and plant as may be on the site of the Work and necessary therefore.

In the event of such termination, the TOWN may take possession of the Work and of all materials, tools, and equipment thereon and may finish the Work by whatever method and means he may select. The CONTRACTOR shall consider it default whenever he shall:

- a. Declare bankruptcy, become insolvent, or assign his assets for the benefit of his creditors.
- b. Disregard or violate important provisions of the Contract Documents or TOWN'S instructions or fail to prosecute the Work according to the agreed Schedule of Completion including extensions thereof.

- c. Fail to provide a qualified superintendent, competent Workmen or SUBCONTRACTORS, or proper materials, or fail to make prompt payment thereof.

If the right of the CONTRACTOR to proceed is so terminated, the TOWN may take possession of and utilize in completing the Work such materials, appliances, supplies, plant, and equipment as may be on the site of the Work, and necessary therefor. Upon termination of the CONTRACT by the TOWN, no further payments shall be due the CONTRACTOR until the Work is completed. If the unpaid balance of the Contract Amount shall exceed the cost of completing the Work including all overhead costs and damages resulting from delay, the excess shall be paid to the CONTRACTOR. If the cost of completing the Work shall exceed the unpaid balance, the CONTRACTOR and his sureties shall pay the difference to the TOWN.

37. ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the Town of all claims and all liability to the CONTRACTOR for all things done or furnished in connection with his Work and for every act and neglect of the Town and others relating to or arising out of this Work. No payment, however, final or otherwise, shall operate to release the CONTRACTOR or his sureties from any obligations under this contract or the Performance and Payment Bond.

38. ASSIGNMENTS

The CONTRACTOR shall not assign the whole or any part of this contract or any moneys due or to become due hereunder without written consent of the Town. In case the CONTRACTOR, with the consent of the Town, assigns all or any part of any moneys due or to become due under this contract, the instrument of assignment shall contain a clause substantial to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the CONTRACTOR shall be subject to prior claims of all persons, firms and corporations of services rendered or materials supplied for the performance of the Work called for in this contract.

39. CODES, REGULATIONS, AND ISSUE DATE OF STANDARD SPECIFICATIONS

Where standard specifications, codes, regulations and similar publications of governmental agencies, technical societies, manufacturer's associations and regulatory groups or bureaus are referred to in these Specifications, the applicable portion thereof shall be of the same effect as if fully printed herein, and the Work done in full accordance therewith. The edition current as of the date of issue of this Specification shall be used except where publication date is specifically stated.

40. EMERGENCY TELEPHONE NUMBER

The CONTRACTOR is required to provide the TOWN with a telephone number, which can be used during emergencies, 24 hours per day, seven days per week, to reach the CONTRACTOR.

41. OTHER CONTRACTS

The Town may undertake or award other contracts for additional Work at or near the site of the Work under this contract. The CONTRACTOR shall fully cooperate with the other CONTRACTORS and with Town employees and shall carefully adapt scheduling and performing the Work under this contract to accommodate the additional Work, heeding any direction that may be provided by the Town. The CONTRACTOR shall not commit or permit any action that will interfere with the performance of Work by any other CONTRACTOR or by Town employees.

42. THE TOWN'S DUTIES AND RIGHTS

- a. The TOWN will provide the lands shown on the Drawings upon which the Work under the CONTRACT is to be performed and to be used for rights-of-way for access. Any delay in furnishing these lands by the TOWN shall be deemed proper cause for adjustment in the Contract Amount and in time of completion.
- b. The TOWN shall have the right to suspend the Work or any portion thereof at any time provided that he gives the CONTRACTOR five (5) days written notice of suspension which shall set forth the date on which Work is to be resumed. The CONTRACTOR shall resume the Work upon written notice from the TOWN and within ten (10) days after the date set forth in the notice of suspension. If the TOWN does not give written notice to resume Work within ten (10) days of the date fixed in the notice of suspension, the CONTRACTOR may abandon that portion of the Work so suspended and shall be entitled to payment for all Work done on the portions so abandoned, plus 15 percent of the value of the abandoned Work to compensate for overhead, plant expense, and anticipated profit.
- c. The TOWN shall have the authority to suspend the Work, wholly or in part, for such period or periods, as may be deemed necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for prosecution of the Work, or failure on the part of the CONTRACTOR to carry out the provisions of the CONTRACT or to supply materials meeting the requirements of the Specifications. The CONTRACTOR shall not suspend operations due to unsuitable weather without the TOWN'S permission.
- d. The TOWN shall have the right to correct any deficiencies, without prejudice to any other remedy he may have, upon failure of the CONTRACTOR to perform the Work in accordance with the Contract Documents, including any requirements with respect to the Schedule of Completion, after five (5) days written notice to the CONTRACTOR. The cost of the Work so performed by the TOWN shall be paid for by the CONTRACTOR.
- e. The TOWN shall have the authority to direct the CONTRACTOR not to correct Work that has been damaged, or that was not performed in accordance with the Contract Documents. An equitable deduction from the Contract Amount shall be made to compensate the TOWN for the uncorrected Work.

- f. The TOWN shall have the right to order changes in the Work through additions, deletions, or modifications without invalidating the CONTRACT.
- g. The TOWN shall have the right to take possession of and use any completed or partially completed portions of the Work, notwithstanding that the time for completing the entire Work or such portions may not have expired; but such taking possession and use shall not be deemed an acceptance of any Work not completed in accordance with the Contract Documents. If such prior use increases the cost of or delays the completion of uncompleted Work or causes refinishing of completed Work, the CONTRACTOR shall be entitled to such extra compensation, or extension of time or both, as the TOWN may determine.

43. CONTRACT BID BREAKDOWN (LUMP SUM)

The CONTRACTOR shall furnish a breakdown of each lump sum bid within 10 days after date of award of contract. Partial payments will be based on this breakdown. The CONTRACTOR's breakdown will be reviewed by the TOWN to ensure that costs are proportioned properly between early and late pay items. Any unbalanced items or other discrepancies will be revised by the TOWN and the approved breakdown will be utilized as a basis for progress payment to the CONTRACTOR.

44. HOURS OF WORK

All Work onsite shall be conducted between the hours of 7:00 am and 5:00 pm, Monday through Friday excluding holidays. Any Work necessary to be performed after regular Working hours, on Saturdays, Sundays, or Legal Holidays, shall be performed only with approval of the Director of Parks and Recreation and without additional expense to the Town.

45. WASTE DISPOSAL

- a. The CONTRACTOR shall be responsible for the cost and legal disposal of all construction debris, municipal solid waste, stumps, and excess materials.
- b. The CONTRACTOR shall legally dispose of any hazardous materials at approved sites at his own expense.

46. LOCK-OUT TAG-OUT STANDARD

The Town of Colchester requires that any CONTRACTOR that maintains or is hired to Work on any Town equipment, abide by the OSHA "Lock-Out Tag-Out" standard. The CONTRACTOR must provide his Workers with locks, hasps and keys approved by OSHA for the proper locking and tagging out of equipment from its power source according to the OSHA standard. The Town of Colchester is not responsible for providing the CONTRACTOR with the locks and hasps. The CONTRACTOR is responsible for complying with this standard and assuring that all of his employees comply with it while Working on Town of Colchester equipment. The Town requires that any CONTRACTOR's equipment brought on to Town property by the CONTRACTOR be properly locked or tagged out from its power source in accordance with the OSHA standard.

47. HAZARD COMMUNICATION

The Town of Colchester requires that any vendor or CONTRACTOR using hazardous materials, or any material that would fall under the OSHA "Right to Know" standard, provide a list to the Town of Colchester of those materials that will be used while on Town property, as well as the material safety data sheets for those products. Conversely, the Town of Colchester shall inform the CONTRACTOR of where the "Employee Right to Know" station is in the area where they are Working so that the CONTRACTOR's employees can be aware of any substances that they may encounter while Working within the Town of Colchester Workplace.

ATTACHMENT 6
TECHNICAL SPECIFICATIONS

Section	Description
1	Summary of Work
2	Coordination and Meetings
3	Submittals
4	Quality Control
5	Construction Facilities and Temporary Controls
6	Materials and Equipment
7	Contract Close-Out
8	Trenching, Excavating, Backfilling, and Compacting for Utilities and Structures
9	Irrigation System

SECTION 1 SUMMARY OF WORK

1) GENERAL

- a) Project/Work Identification
- b) Work Covered by Contract Documents
- c) Work by Town
- d) CONTRACTOR Use of Premises, Work Sequence, and Town Occupancy

2) PROJECT/WORK IDENTIFICATION

- a) The name of the Project is "IRRIGATION DESIGN AND INSTALLATION" and is located in Colchester, Connecticut.

3) WORK COVERED BY CONTRACT DOCUMENTS

- a) Briefly and without force and effect upon Contract Documents, the Work of the Contract can be summarized as follows:
- b) Installation of an irrigation system with associated controls and equipment

4) WORK BY TOWN

- a) Work of the Project which will be executed during Work of this Contract, and which is specifically excluded from this Contract are as follows:
 - i) Re-grading of existing athletic field
 - ii) Re-establishment of natural turf
 - iii) Line striping of new athletic field
 - iv) Incidental curb restoration

5) CONTRACTOR USE OF PREMISES, WORK SEQUENCE, AND TOWN OCCUPANCY

- a) CONTRACTOR shall have use of the site for Work, storage, and access. Under no conditions, shall roads be blocked.
- b) Assume full responsibility for protection and safekeeping of products under this Contract.
- c) Obtain and pay for use of additional storage or Work areas needed for operations under this Contract.
- d) Coordinate the Progress Schedule and operations with the Town.
- e) Cooperate with the Town in scheduling operations to minimize conflict and to facilitate field usage. Provide any and all temporary measures to ensure the safety of the Town and the Town's representatives.
- f) In particular, the CONTRACTOR is not to disrupt existing utility service, interfere with normal auto and pedestrian traffic, or obstruct existing exits and life safety systems and emergency access.

SECTION 2 COORDINATION AND MEETINGS

1) GENERAL

- a) Coordination
- b) Preconstruction Meeting
- c) Progress Meetings

2) COORDINATION

- a) Coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- b) Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- c) Coordinate completion and clean-up of Work of separate sections in preparation for substantial completion and for portions of Work designated for Towns partial occupancy.
- d) During Town use of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Town's use of premises.

3) PRECONSTRUCTION MEETING

- a) The Town will administer preconstruction conference for execution of Town CONTRACTOR Agreement and exchange of preliminary submittals.

4) PROGRESS MEETINGS

- a) General CONTRACTOR shall schedule and administer Project meetings throughout progress of the Work at intervals as required by the Town.
- b) Make physical arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies within two days to the Town, participants, and those affected by decisions made at meetings.
- c) Attendance: Job superintendent, CONTRACTORS, major subcontractors, suppliers, Town as appropriate to agenda topics for each meeting.

SECTION 3 SUBMITTALS

1) GENERAL

- a) Submittal Procedures
- b) Construction Progress Schedules
- c) Proposed Products List
- d) Shop Drawings
- e) Product Data
- f) Samples
- g) Manufacturer's Instructions
- h) Manufacturer's Certificates

2) SUBMITTAL PROCEDURES

- a) Review submittals prior to submission. Verify field measurements, catalog numbers and other information critical to construction or installation. Coordinate each submittal with requirements of Work and of Contract Documents.
- b) Notify Town in writing at time of submission of deviations in submittals from requirements of Contract Documents. Responsibility for deviations from requirements of Contract Documents is not relieved by Engineer's review of submittals, except when given written acceptance of specific deviation.
- c) Transmit each submittal with Engineer accepted form.

- d) Identify Project, CONTRACTOR, Sub-CONTRACTOR, or supplier; pertinent Drawingsheet and detail number(s), and specification Section number, as appropriate.
- e) Apply CONTRACTOR's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- f) Schedule submittals in accordance with approved project schedule so as to cause no delay to the Work. Deliver to Engineer at his business address. Coordinate submission of related items.
- g) Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- h) Provide space for CONTRACTOR review stamp and a 3"x5" Engineer review stamp.
- i) Obtain new samples, revise drawings and/or data as required by Engineer review and resubmit, identify changes made since previous submittal.
- j) Distribute copies of reviewed submittals to concerned persons including Test Lab, Special Inspector, Building Official, and Clerk of the Works (Construction Inspector). Instruct recipients to promptly report any inability to comply with provisions.
- k) Begin no Work which requires submittals until return of submittals with Engineer's review stamp and initials or signature indicating review and distribution to concerned persons.

3) CONSTRUCTION PROGRESS SCHEDULES

- a) Submit initial progress schedule and schedule of values (if lump sum project) in duplicate within 15 days after date established for commencement of Work. After review by Engineer, revise and resubmit as required. Submit revised schedules with every Application for Payment, reflecting changes since previous submittal.
- b) Comply with progress schedule for submittals related to Work progress. Coordinate submittal of related items.
- c) Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Show projected percentage of completion for each item of Work as of time of each Application for Progress Payment.
- d) Show submittal dates required for Shop Drawings, product data, and samples, and product delivery dates, including those furnished by Town and those under Allowances.

4) PROPOSED PRODUCT LIST

- a) Within 15 days after date of Notice to Proceed, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- b) For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

5) SHOP DRAWINGS

- a) Shop Drawings include specially prepared technical data for this project, including

Drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements, and similar information not in standard printed form for general application to several projects.

- b) Provide newly prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated), with name of preparer indicated (firm name). Maximum sheet size shall be 24 in. x 36 in. Show dimensions and note which are based on field measurement. Identify materials and products in the Work shown. Indicate compliance with standards and special coordination requirements.
- c) Identify details by reference to sheet numbers shown on Contract Drawings and Specification Sections, page numbers and paragraph line numbers. Contract Design Drawings shall not be traced or otherwise reproduced for use as Shop Drawings.
- d) Submit (1) reproducible electronic copy of newly prepared Shop Drawings to Engineer. Where design calculations are required, submit (1) reproducible electronic copy of calculations as well.
- e) Do not allow Shop Drawing copies without appropriate approval markings by Engineer to be used in connection with the Work.
- f) Indicate on shop drawing whether it is a full or partial submittal.
- g) Fabrication and installation of components requiring Shop Drawings shall not begin until Shop Drawings have approval of Engineer unless directed otherwise in writing by same.

6) PRODUCT DATA

- a) Product data includes standard printed information on materials, products, and systems; not specially prepared for this project, other than the designation of selections from among available choices printed therein.
- b) Collect required data into one submittal for each unit of Work or system; and clearly mark each copy to show which choices and options are applicable to project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, special coordination requirements, instructions for delivery, storage, assembly, installation, adjusting and finishing.
- c) Submit electronic copies of product data to the Engineer.

7) SAMPLES

- a) Samples include both fabricated and unfabricated physical examples of materials, products, and units of Work; both as complete units and as smaller portions of units of Work; either for limited visual inspection or (where indicated) for more detailed testing and analysis.
- b) Provide units identical with final condition of proposed materials or products for the Work. Include "range" samples (not less than 3 units) where unavoidable variations must be expected and describe or identify variations between units of each set. Provide full set of optional samples where Engineer's selection is required. Prepare samples to match Engineer's sample where so indicated.

- Include information with each sample to show generic description, source or product name and manufacturers, limitations, and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture, and "kind" by Engineer. Engineer will not "test" samples (except as otherwise indicated) for compliance with other requirements, which are therefore the exclusive responsibility of the CONTRACTOR.
- c) Submit the number of samples stated in each Specification Section.
 - d) Mock-ups are a special form of samples, which are too large or otherwise inconvenient for handling in specified manner for transmittal of sample submittals.
 - e) Where mock-ups and similar samples are indicated in individual Work sections recognized as a special type of sample, comply with requirements for "samples" to greatest extent possible, and process transmittal forms to provide a record of activity.

8) MANUFACTURER'S INSTRUCTIONS

- a) When specified in individual specification Sections, submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- b) Identify conflicts between manufacturer's instructions and Contract Documents.

9) MANUFACTURER'S CERTIFICATES

- a) When specified in individual specification Sections, submit manufacturer's certificate to Engineer for review, in quantities specified for Product Data.
- b) Indicate whether material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
- c) Certificates may be recent or previous test results on material or Product but must be acceptable to Engineer.

SECTION 4 QUALITY CONTROL

1) GENERAL

- a) Quality assurance and control of installation.
- b) Manufacturers' field services and reports.
- c) Functional Testing

2) RELATED SECTIONS

- a) Section 3 - Submittals

3) QUALITY ASSURANCE/CONTROL OF INSTALLATION

- a) All Work shall be performed in a first-class, neat, substantial, and Workmanlike manner, by Workers with adequate experience and training to perform the Work.
- b) Monitor quality control over suppliers, manufacturers, products, services, site conditions, and Workmanship, to produce Work of specified quality.
- c) Comply fully with manufacturer's instructions, including each step, in sequence.
- d) Should manufacturer's instructions conflict with Contract Documents, request

clarification from Engineer before proceeding.

- e) Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise Workmanship.
- f) Perform Work by persons qualified to produce Workmanship of specified quality.
- g) Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

4) EQUIPMENT CLEARANCES

- a) Whether or not shown in detail or dimensioned on the Drawings, no equipment shall be installed in such a manner that it cannot be serviced. CONTRACTOR shall make field measurements to ensure that furnished equipment shall fit in available space. If field measurements indicate that specified equipment does not fit the CONTRACTOR shall notify the Engineer in writing, so that appropriate changes can be made.

5) MANUFACTURERS' FIELD SERVICES AND REPORTS

- a) When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of Workmanship, start-up of equipment, test, adjust, and balance of equipment as applicable, and to initiate instructions when necessary.
- b) Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.
- c) Submit report in duplicate within 30 days of observation to Engineer for review.

6) FUNCTIONAL TESTING

- a) Functional testing of all systems and equipment shall be required. Test shall be attended by representatives of the CONTRACTOR, equipped with instruments required to demonstrate proper functioning of each system. The CONTRACTOR shall demonstrate that all Equipment is installed and operating in accordance with manufacturer's specifications and instructions, local and state codes.

SECTION 5 CONSTRUCTION FACILITIES AND TEMPORARY CONTROL'S

1) GENERAL

- a) Unless noted otherwise, the General CONTRACTOR shall provide the following:
 - i) Temporary Utilities
 - (1) Electricity, Lighting
 - (2) Temporary Water
 - (3) Sanitary Facilities
 - ii) Temporary Controls
 - (1) Barriers
 - (2) Enclosures
 - (3) Protection of Installed Work

- (4) Hoists
- (5) Construction Aids
- (6) Water Control

iii) Construction Facilities

- (1) Cleaning During Construction
- (2) Field Offices and Sheds
- (3) Access on Roads
- (4) Parking
- (5) Removal of Utilities, Facilities and Controls

2) TEMPORARY ELECTRICITY, LIGHTING

- a) Arrange with utility company and pay all costs to provide service required for construction operations, with branch wiring and distribution boxes located to allow service and lighting by means of construction-type power cords.
- b) Provide artificial lighting, at a rate of 1 watt per square foot minimum, for construction operations when natural light is not adequate for Work.
- c) Existing and permanent lighting may be used during construction.
- d) Maintain lighting and make routine repairs.
- e) When working on Town sites or buildings and electricity is readily available, the CONTRACTOR may use the Town's electric service at no expense. (This does not include any field offices.)

3) TEMPORARY WATER

- a) Arrange with utility company and pay all costs to provide service required for construction operations.
- b) Water may be trucked in at the CONTRACTOR's option.
- c) When Working on Town sites or buildings and water is readily available, the CONTRACTOR may use the Town's water service at no expense.

4) BARRIERS

- a) Provide as required to prevent unauthorized entry to construction areas, to allow for Town's and Town's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- b) Provide barricades and covered walkways as required by governing authorities for public rights-of-way and for public access to existing buildings.
- c) Provide barriers around trees and plants designated to remain. Protect against vehicular traffic, stored materials, dumping, chemically injurious materials, and puddling or continuous running water.

5) ENCLOSURES

- a) Provide temporary insulated weather-tight closures where indicated and where reasonably required to ensure adequate workmanship and protection from weather and unsatisfactory ambient conditions for Work to allow for temporary heating.

6) PROTECTION OF INSTALLED WORK

- a) Protect installed Work and provide special protection where specified in individual Specification Sections.
- b) Provide temporary protection for installed products. Control activity in immediate area to minimize damage.
- c) Prohibit traffic from lawns and landscaped areas.

7) HOISTS

- a) Provide adequate hoist facilities for loading and unloading materials.

8) CONSTRUCTION AIDS

- a) Provide construction aids and equipment required by personnel and to facilitate execution of the Work: scaffolds, staging, ladders, ramps, runways, platforms, railings, cranes, chutes and other such facilities and equipment. Refer to respective sections for particular requirements for each trade.
- b) Maintain facilities and equipment in first-class condition.

9) WATER CONTROL

- a) Grade site to drain.
- b) Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- c) Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

10) CLEANING DURING CONSTRUCTION

- a) Control accumulation of waste materials and rubbish; periodically dispose of off- site.
- b) Streets and drives in the area of construction shall be kept free of accumulation of mud, clay, gravel, and any other materials which vehicles or equipment may track or scatter onto these surfaces.
- c) No burning or disposal of rubbish at the job site will be permitted.

11) FIELD OFFICES AND SHEDS

- a) CONTRACTOR may erect and maintain a temporary field office on the project site. Place field office in coordination with Town's direction.
- b) Field Office:
 - i) Weather-tight, with lighting, electrical outlets, heating, ventilating and air conditioning equipment, and equipped with furniture.
 - ii) Provide space for project meetings, with table and chairs to accommodate 6 persons.
- c) Storage Sheds for Tools, Materials, and Equipment: Weathertight, with heat and ventilation for Products requiring controlled conditions, with adequate space for organized storage and access, and lighting for inspection of stored materials.

12) ACCESS ON ROADS

- a) Maintain passage of roads and driveways during construction unless otherwise authorized. Spray roads periodically with calcium chloride to keep dust to a minimum.

- b) Provide means of removing mud from vehicle wheels before entering public streets.

13) REMOVAL OF UTILITIES, FACILITIES AND CONTROLS

- a) Remove temporary above grade or buried materials, equipment, utilities, and construction prior to Substantial Completion inspection. Remove underground installations to a depth of 2 feet; grade site as indicated.
- b) Clean and repair damage caused by installation or use of temporary Work or facilities. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

SECTION 6 MATERIALS AND EQUIPMENT

1) GENERAL

- a) Products
- b) Transportation and Handling
- c) Storage and Protection
- d) Product Options
- e) Substitutions

2) RELATED SECTIONS

- a) Section 4 - Quality Control

3) PRODUCTS

- a) Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- b) Components required to be supplied in quantity within a Specification section shall be the same and shall be interchangeable.
- c) Do not use materials and equipment removed from existing structure, except as specifically required, or allowed by Contract Documents.

4) TRANSPORTATION AND HANDLING

- a) Transport products by methods which will avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.
- b) Provide equipment and personnel to handle products by methods which will prevent soiling or damage.
- c) Promptly inspect shipments to assure that products comply with requirements; quantities are correct; and products are undamaged.

5) STORAGE AND PROTECTION

- a) Store products in accordance with manufacturer's instructions, with seals, and labels intact and legible. Store sensitive products in weather-tight enclosures. Maintain within temperature and humidity ranges required by manufacturer's instructions.
- b) For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.

- c) Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- d) Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged and are maintained under required conditions.
- e) Take proper fire precautions at all times during storage and of flammable and explosive materials. Do not store Styrofoam or cellular polystyrene insulation in or adjacent to any building.
- f) Any products damaged by failure to provide above protection shall be removed and replaced with new material at the CONTRACTOR's expense, unless covered by Insurance.

6) PRODUCT OPTIONS

- a) Products specified by Reference Standards or by description only: Any product meeting those standards or description.
- b) Products specified by naming one or more manufacturers with a provision for substitutions or approved equal: Submit a request for substitution for any manufacturer not named.
- c) Products specified by naming several manufacturers: Products of named manufacturers and meeting specifications; no options and no substitutions allowed.
- d) Products specified by naming only one manufacturer: No options and no substitutions allowed.
- e) Product Options: Whenever any product is specified in the Contract Documents by reference to the name, trade name, make or catalog number of any manufacturer or supplier, "or approved equal", the Town, in conjunction with the Engineer shall be the sole judge as to whether a proposed equal is to be approved and the CONTRACTOR shall have the burden of proving, at his own cost and expense to the satisfaction of the Town, and in conjunction with the Engineer, that the proposed product is equal to the named product. In making such determination, the Engineer may establish such objective and appearance criteria as he may deem proper that the proposed product must meet in order for it to be approved.

7) SUBSTITUTIONS

- a) Only within 30 days after date of contract signing will Engineer consider requests from CONTRACTOR for substitutions. Subsequently, substitutions will be considered only when a product becomes unavailable due to no fault of CONTRACTOR.
- b) Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- c) When requested by Engineer, document each substitutions submittal with complete data substantiating compliance of proposed substitution with Contract Documents including:
 - i) Comparison of the qualities of the proposed substitution with the product specified.
 - ii) Changes required in other elements of the Work because of the substitution.

- iii) Effect on construction schedule.
 - iv) Cost data comparing proposed substitution with product specified.
 - v) Any required license fees or royalties.
 - vi) Availability of maintenance service and source of replacement materials.
 - vii) Evidence that proposed substitution has been in successful service for a minimum of five years.
- d) Request constitutes a representation that the CONTRACTOR:
- i) Has investigated proposed product and determined that it meets or exceeds, in all respects, specified product.
 - ii) Will provide the same warranty for substitution as for specified product.
 - iii) Will coordinate installation and make other changes to other Work which may be required for Work to be complete in all respects with no additional costs to Town.
 - iv) Waives claims for additional costs or time extensions which may subsequently become apparent.
 - v) Will reimburse the Town for review or redesign services associated with re-approval by authorities.
- e) Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals without separate written request, or when acceptance will require substantial revision of Contract Documents.
- f) Substitution Submittal Procedure:
- i) Submit three (3) copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
 - ii) Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence.
 - iii) Engineer will determine acceptability of proposed substitution and will notify CONTRACTOR of acceptance or rejection in writing within a reasonable time.
 - iv) Only one request for substitution will be considered for each product. When substitution is not accepted, provide specified product.

SECTION 7 CONTRACT CLOSE-OUT

1) GENERAL

- a. Close-out Procedures
- b. Final Cleaning
- c. Project Record Documents
- d. Warranties and Bonds
- e. Spare Parts and Maintenance Materials

2) RELATED SECTIONS

- a. Section 1 - Summary of Work

3) DEFINITIONS

- a) Close-out is defined to include general requirements near the end of Contract Time,

in preparation for final acceptance, final payment, normal termination of contract, occupancy by Town and similar actions evidencing completion of the Work. Specific requirements for individual units of Work are specified in Sections of Division 2 through 16. Time of closeout is directly related to "Substantial Completion", and therefore is a single time period for the entire Work.

4) CLOSE-OUT PROCEDURES

- a) Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.
- b) Provide submittals to Engineer and Town that are required by governing or other authorities.
- c) Prior to requesting Engineer's inspection for certification of substantial completion, as required by general conditions (for either the entire Work or portions thereof), complete the following and list known exceptions in request:
 - i) In progress payment request coincidental with or following first date claimed, show either 100 percent complete for portion of Work claimed as "substantially complete", or list incomplete items, value of incompleteness, and reasons for being incomplete.
 - ii) Advise Engineer of pending insurance change-over requirements, if any.
 - iii) Submit updated final statement, accounting for additional (final) changes to the Contract Sum and as follows:
 - (a) Statement shall reflect all adjustments.
 - (b) Original Contract Sum.
 - (c) Additions and deductions resulting from: Previous change orders, cash allowances, unit prices, other adjustments, deductions for uncorrected Work, deductions for liquidated damages, bonuses, deductions for re-inspection payments, total contract sum, as adjusted previous payments.
 - (d) Sum remaining due.

5) SUBSTANTIAL COMPLETION

- a) Within ten (10) days following receipt of CONTRACTOR's request for substantial completion inspection, Engineer will either proceed with inspection, or advise CONTRACTOR of prerequisites not fulfilled.
- b) Following initial inspection, Engineer will either prepare certificate of substantial completion, or advise CONTRACTOR of Work which must be performed prior to issuance of certificate; and repeat inspection when requested and assured that Work has been substantially completed. Results of completed inspection will form initial "punch-list" for final acceptance.
- c) Should Engineer consider that Work is substantially complete, the CONTRACTOR

shall prepare, and submit to Engineer, a list of items to be completed or corrected, as determined by the inspection.

- d) Engineer will prepare and issue a Certificate of Substantial Completion, complete with signatures of Town and CONTRACTOR, accompanied by CONTRACTOR's list of items to be completed or corrected as verified and amended by Engineer.
- e) Complete Work listed for completion or correction within designated time. Should Engineer consider that Work list is not substantially complete, he shall notify CONTRACTOR in writing stating reasons.
- f) Complete Work, and send second written notice to Engineer, certifying that Project, or designated portions of Project, is substantially complete.
- g) Engineer will re-inspect Work.

6) PREREQUISITES TO FINAL ACCEPTANCE

- a) Prior to requesting Engineer's final inspection for certification of final acceptance and final payment, as required by General Conditions, complete the following and list known exceptions (if any) in request:
- b) Submit certified copy of Engineer's final punch list of itemized Work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.
- c) Submit record drawings, maintenance manuals, final project photographs, specific warranties, Workmanship/maintenance bonds, maintenance agreements, final certifications, and similar record documents as specified herein.
- d) Complete final clean-up requirements as specified herein, including touch-up of marred surfaces.
- e) Deliver tools, spare parts, extra stocks of materials, and similar physical items to Town.

7) FINAL ACCEPTANCE

- a) Within five (5) days following receipt of CONTRACTOR's notice that the Work has been completed, including "punch list" items from earlier inspections, Engineer will re-inspect the Work. Upon completion of re-inspection, Engineer will either notify CONTRACTOR in writing of Work not completed or obligations not fulfilled as required for final acceptance of request. CONTRACTOR to submit evidence of payments, release of liens and final application for payment as an indication of final acceptance.
- b) CONTRACTOR shall take immediate steps to remedy the stated deficiencies and send second written notice to Engineer certifying that Work is complete and Engineer will re-inspect Work.
- c) Should Engineer be required to perform second inspections because of failure of Work to comply with original certifications of CONTRACTOR. Town will compensate Engineer for additional services, and deduct amount paid from final payment to CONTRACTOR.

8) EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

- a) The CONTRACTOR shall submit the following documents as evidence of payments and release of liens with the final application for payment:
- b) CONTRACTOR's Affidavit of Payment of Debts and Claims: AIA G706.
- c) CONTRACTOR's Affidavit of Release of Liens: AIA G706A.
- d) CONTRACTOR's release or waiver of liens.
- e) Separate releases of waivers of liens for Subcontractors, suppliers, and others with lien rights against property of Town, together with list of those parties.
- f) Consent of Surety to Final Payment: AIA G707.
- g) All submittals shall be duly executed before delivery to Engineer.

9) FINAL APPLICATION FOR PAYMENT

- a) Engineer will prepare final Change Order, reflecting approved adjustment to contract sum not previously made by Change Orders.
- b) CONTRACTOR shall submit final application in accordance with requirements of General and Supplementary Conditions and as herein specified.
- c) Final Certificate for Payment
- d) Engineer will issue final certificate in accordance with provisions of General Conditions.
- e) Should final completion be materially delayed through no fault of CONTRACTOR, Engineer may issue a Semi-Final Certificate of Payment, in accordance with provisions of General Conditions.

10) FINAL CLEANING

- a) Special cleaning requirements for specific portions of the Work are specified in their individual sections.
- b) Complete final cleaning prior to final inspection.
- c) Clean project site (yard and grounds), including landscape, development areas, of litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, petrol chemical spills and other foreign deposits. Rake grounds which are neither planted nor paved, to a smooth, even-textured surface.
- d) Conduct cleaning and waste disposal operations in compliance with all laws and ordinances. Comply with federal and local environmental and anti-pollution regulations.
- e) No burning or disposal of rubbish at the job site will be permitted

11) PROJECT RECORD DOCUMENTS

- a) Maintain documents in clean, dry, legible condition and do not use record documents for construction purposes. Store documents in files and on racks in temporary field office. Keep separate from those used for construction.
- b) Record documents shall be available at all times for reference by Engineer and Town.
- c) Keep documents current. Do not permanently conceal any Work until required information has been recorded on the documents.

- d) At Contract close-out, submit documents with transmittal letter containing date, Project title, CONTRACTOR's name and address, list of documents, and signature of CONTRACTOR. Label each record document "PROJECT RECORD" in large printed or stamped letters.
- e) Record Drawings: During progress of Work, maintain two (2) sets of Contract drawings, shop drawings, and any special drawings with mark-up of actual installation which vary substantially from the Work as originally shown. Engineer will provide one set of mylar sepias and one set of prints for CONTRACTOR's use.
 - i) Mark whatever drawing is most capable of showing actual physical condition, fully and accurately.
 - ii) When shop drawings are marked-up, mark cross-reference on Contract drawings at corresponding location.
 - iii) Mark with erasable color pencil, using separate colors where feasible to distinguish between changes for different categories of Work at same general location.
 - iv) Mark-up important additional information which was either shown schematically or omitted from original drawings. Give particular attention to information on Work concealed, which would be difficult to identify or measure and record at a later date.
 - v) Note alternative numbers, change order numbers and similar identification.
 - vi) Require each person preparing mark-up to initial and date mark-up.
- f) Record Specifications: During progress of the Work, maintain two (2) copies of project manual, including addenda, and two (2) copies of change orders and similar modifications issued in printed form during construction.
 - i) Mark up variations (of substance) in actual Work in comparison with text of specifications and modifications as issued.
 - ii) Give particular attention to substitutions, selection of options, and similar information on Work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation.
 - iii) Note related record drawing information and product data, where applicable.
- g) Record Product Data: During progress of the Work, maintain one copy of each product data submittal, and mark up significant variations in the actual Work comparison with submitted information.
 - i) Include both variations in product as delivered to site, and variations from manufacturer's instructions and recommendations for installation.
 - ii) Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned at a later date by direct observations.
 - iii) Note related change orders and mark up of record drawings and specifications.
- h) Record Samples: Immediately prior to date(s) of substantial completion, Engineer and Town's personnel will meet with CONTRACTOR at site and will determine which (if any) of submitted samples, maintained by CONTRACTOR during progress of the Work, are to be transmitted to Town for record purposes.

- i. Comply with Engineer's instructions for packaging, identification marking, and delivery to Town's sample storage space.
- ii. Dispose of the samples in manner specified for disposal of surplus and waste materials, unless otherwise indicated or directed by Engineer.

SECTION 8

TRENCH EXCAVATING, BACKFILLING, AND COMPACTING FOR UTILITIES AND STRUCTURES

PART 1 GENERAL

1) WORK INCLUDED

- a) The Work under this section includes all the labor, materials, tools, and equipment necessary to perform, to the lines and grades shown on the plans, all earth excavation, backfill, and compaction required to install all utilities and structures in the project as shown on the drawings or referenced in the specifications. It shall also include the disposal of excess or unsuitable material.

1) RELATED WORK

- a) Section 3 - Submittals
- b) Section 4 - Quality Control

2) REFERENCE STANDARDS

- a) Form 818, State of Connecticut Department of Transportation, Standard Specification for Roads, Bridges, and Incidental Construction, 2020.
- b) ASTM – American Society for Testing and Materials
 - a) D422, Particle-size Analysis of Soils
 - b) D2922, Density of Soil and Soil Aggregate in Place by Nuclear Methods
 - c) D1557, Moisture Density Relations of Soils and Soil Aggregate Mixtures using 10 lb. Rammer and 18-inch drop.

3) QUALITY ASSURANCE

- 1) Protect and maintain site boundaries and project limits during construction. If disturbed, destroyed, or exceeded, repair as directed by Engineer.

4) SUBMITTALS

- 1) Submit under provisions of Section 3 for all materials to be used in this section.

5) SITE CONDITIONS

- a) Verify and confirm all existing conditions in the field.
- b) Restore any and all areas outside the contract limit lines that are disturbed during the progress of Work as directed by the Engineer at the CONTRACTOR's expense.
- c) If subsurface investigations have been made, the results are included elsewhere. The data shown, if any, is for general information only. Bidders are expected to examine the site and the compiled record of investigations, and then decide for themselves the character of materials to be encountered. No warranty, either expressed or implied, is made as to the accuracy of the subsurface information presented.

- d) The Bidders will be allowed, with concurrence of the Town, the right to make any subsurface explorations they deem necessary to satisfy themselves of the existing ground conditions.

6) COORDINATION

- a) Coordinate Work with Town surveyors for layout and grading.
- b) Coordinate with affected utility companies.

7) PROTECTION

- a) Protect benchmarks, monuments, other reference points, existing structures, roads, sidewalks, paving, curbs, overhead and underground utilities against damage from equipment and vehicular or foot traffic.
- b) Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods as required to sustain excavated areas.
- c) Protect bottom of excavations and soil around and beneath utilities from frost.
- d) Grade around excavation to prevent surface water run-off into excavated area.

8) MEASUREMENT AND PAYMENT

- a) Work under this section shall be included in the CONTRACTOR's lump sum bid for the entire project.

PART 2 PRODUCTS

MATERIALS

- b) Fill: Usable material excavated within the limits of Work or imported material conforming to Article M.02.06 Grading "C" of Form 818. Only free draining material shall be used.
- c) Topsoil: Usable material excavated within the limits of Work or imported material conforming to M.13.01-4 of Form 818. Texture Class: Loam.
- d) Processed Gravel: Usable material excavated within the limits of Work or imported material conforming to Article M.02.06 Grading "C" of Form 818. Only free draining material shall be used.
- e) Pipe Bedding: Conform to Article M.08.03-1 of Form 818.
- f) Sand: Fine aggregate of clean, hard, durable, uncoated particles of quartz or other rock, conforming to M.03.01-2 of Form 818.

PART 3 EXECUTION

1) STRIPPING AND STOCKPILING TOPSOIL

- a) Topsoil from resulting trenching shall be stripped and stockpiled for use in backfilling.
- b) Stockpile topsoil so that natural drainage is not obstructed, and no off-site sediment damage shall result.
- c) Side slopes of the stockpile shall not exceed a 2 to 1 slope.
- d) No topsoil shall be excavated, graded, or worked in saturated or frozen condition.
- e) Dispose of unsuitable material off site in a legal manner.

2) REMOVING EXISTING PAVEMENT SURFACES

- a) No excavation shall be made until existing paved surfaces have been neatly saw-cut. Pavement which is weakened or destroyed beyond the limits indicated shall be recut and trimmed as directed by the Engineer. The additional pavement shall be removed and replaced by the CONTRACTOR at no additional expense to the Town.
- b) All pavement removal within state-controlled highway lines shall be in strict accordance with all requirements of the State Highway Department. Conditions of permits for excavation within established rights-of-way shall be strictly observed and the CONTRACTOR shall assume full responsibility for violations thereof.

3) EARTH EXCAVATION

- a) Excavation shall be in open cut with sheeting provided in areas shown on the plans or as required. Excavate in such a manner and to such widths as will give suitable room for utility construction.
- b) All excavations carried outside of the lines and grades given or specified, together with the disposal of such material, and all excavations and other Work resulting from slides, cave-ins, swellings, or upheavals, will be at the CONTRACTOR's own cost and expense. All spaces resulting from unauthorized excavations or from slides or cave-ins shall be refilled at the CONTRACTOR's expense with suitable material, as directed and approved by the Engineer.
- c) When materials encountered are not suitable for the utility or when it is found desirable or necessary to go to additional depth, the excavation shall be carried to an additional depth as ordered and refilled and compacted as directed by the Engineer.

4) SITE CONTAMINATION

- a) The suspicion of, or unanticipated discovery of, contaminated ground during the excavation, or other Work task under this contract, shall be reported immediately to the Engineer and/or Town. The CONTRACTOR, at all times, shall exercise caution to protect Workmen, observers, and residents from harm. The CONTRACTOR shall provide all reasonable and necessary assistance to the Town and/or Engineer to ascertain the nature and source of ground contamination.
- b) Any unreasonable delays to an established Work schedule or any significant changes to the CONTRACTOR's normal operation resulting from the Town's directed corrective action for the ground contamination will be considered during review of time extension and extra Work order requests by CONTRACTOR.

5) PROTECTION OF WORK

- a) Provide safe working conditions for the protection of workers, materials and equipment involved in the Work, and to protect the public, adjacent structures, utilities, poles, pipelines, duct, conduit, streets and other public or private property from cave-ins, slides, settlement, or other damage.
- b) CONTRACTOR shall assume full responsibility for compliance with all local codes or State and Federal laws which pertain to safe Working conditions for the protection of men, materials, and equipment during excavation.
- c) Existing pipes, poles, wires, fences, curbing, property-line markers, and other

structures, which must be preserved in place without being temporarily or permanently relocated, shall be carefully supported, and protected from injury. Should such items be damaged, they shall be restored by the CONTRACTOR, without compensation, to at least as good a condition as that in which they were found immediately before the Work was begun.

- d) Cooperate closely with all utility companies involved and to ascertain the exact locations of all utilities prior to excavation. Existing utilities will be protected from damage during construction, and if damaged, will be repaired by the CONTRACTOR at his own expense. Note that it is the policy of the local utilities not to mark locations of services on private property. Therefore, it is the responsibility of the CONTRACTOR to locate utilities on the site.
- e) Power-driven excavating machinery shall be handled with care to prevent damage to shade trees, particularly to overhanging branches. Branches shall not be cut off except by special permission from the Engineer.
- f) Dig up, handle, protect and properly reset signs, posts, guard rails and the like along the line of or adjacent to the Work.
- g) Utility poles or other structures in close proximity to trench excavations must be tied back, braced, or otherwise temporarily supported to the satisfaction of the utility company. Costs for providing such support, or damages resulting from inadequate or insufficient support, shall be the CONTRACTOR's sole responsibility and no separate compensation will be made.
- h) Damage to electric poles, or their attachments, under- ground duct lines, manholes, conduits, or their components caused by the CONTRACTOR shall be repaired by the controlling utility agency, but the financial responsibility shall rest with the CONTRACTOR.

6) CARE AND RESTORATION OF PROPERTY

- a) Do not use or operate tractors, bulldozers, or other power-operated crawler equipment on paved surfaces; the treads or wheels of which are so shaped as to cut or otherwise injure such surfaces without providing proper protection for the pavement.
- b) Replace in kind, all granite, concrete, or bituminous curbing removed. Granite or precast concrete curbing shall be set plumb and true to the lines and grades established and shall be backed up with materials equal to those removed. Existing cast-in-place or bituminous curbing which is damaged or destroyed by the CONTRACTOR, or precast concrete or granite curbing, which is damaged, and is not scheduled for removal, shall be replaced with new curbing equal to that removed at the CONTRACTOR's sole expense.
- c) All surfaces which have been injured by the CONTRACTOR's operations shall be restored to a condition at least equal to that in which they were found immediately before Work was begun. Suitable materials and methods shall be used for such restoration.
- d) The restoration of existing property or structures shall be done as promptly as practicable and shall not be left until the end of the construction period.

- e) In case of failure on the part of the CONTRACTOR to restore damaged property, the Engineer may, upon forty-eight (48) hours written notice to the CONTRACTOR, proceed to have the necessary repairs, rebuilding, or restoration Work performed and the cost thereof may be deducted from any monies due, or to become due, the CONTRACTOR under this Contract, or the Town may deduct from any monies due, or to become due, a sum sufficient in the judgement of the Engineer to reimburse the Town of the property so damaged or injured.

7) DISPOSAL OF SURPLUS AND UNSUITABLE EXCAVATED MATERIALS

- a) Dispose of material off-site in a legal manner.

8) DUST CONTROL

- a) Conduct operations and maintain the area of activities, including sweeping and sprinkling of area as necessary, so as to minimize the creation and dispersion of dust. If it is necessary to use calcium chloride for more effective dust control, the CONTRACTOR shall furnish and spread the material as directed at no additional cost to the Town.

9) DEWATERING

- a) CONTRACTOR shall at all times keep the excavation free from water. The water shall be disposed of by the CONTRACTOR to the satisfaction of the Town of Colchester Water Department and in accordance with the General Conditions and applicable laws and regulations.
- b) CONTRACTOR shall provide all necessary pumps, dams, drains, ditches, flumes, well points, and other means for excluding and removing water from trench excavations, and for preventing the slopes from sliding or caving in. CONTRACTOR shall satisfactorily remove all water which interferes with the Work. The CONTRACTOR shall sufficiently dewater excavations trenches to completely dry out and solidify the foundation below the bottom of the pipe to whatever depth is necessary to provide a firm, solid, completely dry foundation on which to lay the pipe.
- c) No additional payment shall be made for dewatering, temporary stream or underground diversion, pumping, bailing or for equipment necessary for the satisfactory dewatering of the trench excavation but the cost is considered to be included in the unit price for trench excavation.

10) BACKFILLING

- a) As the various pipes or utilities are installed, refill the space outside and around the pipe walls with approved materials to the depths, and widths, and as shown on the plans and standard details. All forms, bracing, and lumber shall be removed before backfilling.
- b) Frozen material shall not be placed in the backfill nor shall backfill be placed upon frozen material. Previously frozen material shall be removed or shall be otherwise treated as required before new backfill is placed.
- c) Backfill shall be placed in lifts no greater than nine (9) inches.

- d) The dry density after compaction for athletic fields shall not be less than 85 percent or more than 90 percent of the dry density for that soil when tested in accordance with AASHTO T 180, Method D. Correction for particles retained in the 3/4 inch sieve shall be as specified in AASHTO Method T-224.
- e) The dry density after compaction for pavement and structures shall not be less than 95 percent of the dry density for that soil when tested in accordance with AASHTO T 180, Method D. Correction for particles retained in the 3/4 inch sieve shall be as specified in AASHTO Method T-224.
- f) Backfill shall be placed and compacted in a manner so as not to damage any waterproofing materials applied to the outside of the structure. Any damage caused to waterproofing shall be repaired at the CONTRACTOR's expense.
- g) If necessary to ensure proper compaction by tamping or rolling, the material shall first be wet by sprinkling. However, no compaction by tamping or rolling shall be done when the material is too wet either from rain or too great an application of water to be compacted properly. At such times, the Work will be suspended until the previously placed and new materials have dried out sufficiently to permit proper compacting, or such other precautions shall be taken as may be necessary to obtain proper compaction.
- h) Care shall be taken that stones and lumps do not become nested and that all voids between stones shall be completely filled with fine material.
- i) All voids left with removal of sheeting shall be completely backfilled with suitable materials and thoroughly compacted.

SECTION 8 IRRIGATION SYSTEM

PART 1 GENERAL

1) QUALIFICATION OF BIDDERS

- a) The Bidder shall have at least five (5) years of experience in athletic field irrigation system installation with at least three (3) projects in the last three (3) years. The Bidder shall submit, with his Bid, a list of the three (3) latest completed projects of a similar nature to this project. The Town reserves the right to request additional data information necessary to qualify the Bidder. The Town also retains the right to reject any bid if in his opinion the CONTRACTOR is not qualified to properly perform the Work described by the plan and specifications.
- b) As required, the CONTRACTOR must be licensed to install irrigation systems in the State of Connecticut. The CONTRACTOR shall comply with all regulations pertaining to the license as determined by the governing department. A copy of the CONTRACTOR's license must be furnished before the Contract is awarded.

2) INTENT

- a) The objective of these specifications is to provide an assembled, installed and fully functioning automatic irrigation system which will efficiently irrigate all areas to be covered and shall be acceptable in all aspects to the Town. These specifications, design details, and irrigation plans are to be considered part of the Contract, and the CONTRACTOR shall follow the specifications with due perseverance.

2) WORK INCLUDED

- a) The Contract contemplated by these specifications consists of the CONTRACTOR furnishing all supervision, labor, equipment, and materials required for all Work described herein to install a "turn-key" fully automatic irrigation system as further defined in the plan and specifications. Unless otherwise specified, the plan and specifications are intended to include everything obviously requisite and necessary for the proper installation and completion of the Work whether each necessary item is mentioned herein or not.
- b) The plan and specifications are intended to be cooperative, and any item called for in one and not the other shall be as binding as if called for in both.
- c) The CONTRACTOR shall provide the Town with as-built drawings indicating sizes and locations of all the irrigation components as installed.

3) PROJECT SUMMARY

- a) A general description of the Work, which is further clarified in the Specifications, to be done under this Contract includes, but is not limited to:
 - i) Furnish and install all new PVC mainline and lateral piping, isolation valves, fittings, and any other necessary pipeline appurtenances for the irrigation system, including connection to the water source.
 - ii) Furnish and install new control valves, sprinklers and quick coupler valves with swing joint assemblies and all necessary fittings, valve boxes, etc.
 - iii) Furnish and install a new 2" backflow device at the water connection that meets the requirements of local and national codes.
 - iv) Furnish and install a new smart, wireless irrigation controller with wireless weather sensing equipment, wireless soil moisture monitor, and internet control module, including all necessary electrical supplies and internet capabilities.
 - v) Provide one winterization and spring start-up of the irrigation system after the entire installation has been completed and approved by the Town.

SECTION 2 IRRIGATION MATERIALS

1) MATERIALS

- a) The Hunter sprinklers, valves and controllers chosen for the design of the irrigation system have been specifically referred to so as to enable the Town to establish consistency with other Town irrigation systems. Sprinklers, electric control valves, quick coupler valves and control system equipment shall be as specified, and substitutions shall not be allowed.
- b) The materials required for the project shall be purchased from *a single authorized local distributor* to ensure prompt local support for any warranty issues that may arise during construction or after completion.
- c) The CONTRACTOR shall supply the materials necessary for a complete, smart wireless irrigation system. The CONTRACTOR shall arrange for the materials to be on site prior the CONTRACTOR's arrival to start the Work.
- d) All materials shall be new and unused as specified.

2) PRODUCT SUBMITTALS

a) The CONTRACTOR shall submit product specification sheets of the following items prior to bringing materials to the project site. Submittals shall include the manufacturer of the product with specific model numbers, sizes, etc. highlighted. One (1) electronic copy of the submittal package shall be forwarded to the Engineer for approval.

- i) Each type of sprinkler
- ii) Electric control valves
- iii) Quick coupler valves
- iv) Backflow Preventer
- v) Irrigation controllers
- vi) Weather and soil sensing equipment
- vii) Mainline and lateral piping
- viii) Mainline and lateral fittings
- ix) Swing joint assemblies
- x) Mainline and lateral isolation valves
- xi) Valve boxes

3) SPRINKLERS

- a) The rotary sprinklers shall be capable of full- and part-circle operation and be a gear-driven rotary type and have a 1" ACME female-threaded inlet. The sprinklers required shall be the high-flow model that includes a seven (7) nozzle tree capable of a 46' to 75' radius, depending on nozzle / PSI configuration.
- b) Water distribution shall be via a single pressed-in nozzle, retained by the radius reduction screw and have a stainless-steel riser that elevates 5.75" above the body when in operation. All of the sprinkler nozzles shall be color-coded for easy identification of radius and flow performance capabilities. A stainless-steel radius reduction screw shall be provided for fine-tuning the radius up to a 25% reduction.
- c) The arc of the sprinkler shall be top-adjustable wet or dry, and graphically illustrated to identify the arc setting. The sprinkler shall be adjustable from a minimum of 45 degrees to maximum of 335 degrees as a part circle, and a true uni-directional full circle at 360 degrees. The sprinkler shall incorporate SMART ARCTM, a memory arc feature that allows the nozzle base to be turned beyond the arc borders without damage to the sprinkler and returns to the original arc setting once released. The sprinkler shall include a nozzle base clutch feature that enables the user to rotate the nozzle base in either direction (wet or dry) and hold in one position (during operation) for spot watering.
- d) Rotation shall be accomplished by a water-lubricated planetary gear drive designed to provide a 3-minute, full circle rotation speed throughout the pressure and flow range.
- e) The nozzle base cover shall incorporate a pull-up feature that provides serviceability of the nozzles and riser assembly. The sprinkler shall have a plastic filter screen in the riser to prevent entry of foreign material from clogging the nozzle.
- f) All internal components shall be serviceable from the top of the sprinkler without disturbing the body installation. Sprinkler flush rate shall not exceed 5 GPM. The rubber cover shall be injection-molded from Santoprene thermoplastic elastomer.

- g) The sprinkler shall provide a check valve feature that prevents low head drainage, soil erosion and water waste while maintaining water in the piping system up to 5' (1,5m) of elevation difference. The check valve shall be reversible allowing full pipe drainage if desired.
- h) All sprinklers shall be developed and manufactured by a Hunter, ISO 9001-certified facility.

4) QUICK COUPLER VALVES

- a) The valve shall have a corrosion resistant stainless-steel spring and self-flushing brass plunger. There shall be a chevron-shaped wiper seal to reduce leakage around the key when inserted. It shall also incorporate a drain hole in the body to minimize debris collection
- b) The quick coupler valve shall be located near home plate, on the infield on the baseball/softball fields.

5) ELECTRIC CONTROL VALVES

- a) The electric control valve shall be a pressure-regulating model constructed of rust- and electrolysis-resistant glass- filled nylon (GFN). The valve shall have a minimum operating pressure of 20 PSI and a maximum operating pressure of 220 PSI, and a flow range of 5 to 300 gallons per minute (GPM), dependent on size.
- b) The valve's diaphragm and valve seat seal shall be made of nylon-reinforced EPDM. All valve parts shall be fully- serviceable from the top of the valve without the need of having to remove the valve from the line. The valve may be installed at any angle without affecting its operation. All fasteners and other internal components of the valve shall be made of stainless steel, brass, or plastic to ensure corrosion resistance.
- c) The valve shall have an internal manual downstream bleed to prevent flooding of the valve box, as well as an external bleed for system flushing. The valve shall have a removable self-cleaning, stainless-steel metering system. The valve shall have a manual flow control that is adjustable down to zero flow via a hand-operated, rising-type flow-control stem made from brass. The valve shall have a slow-closing design to prevent the occurrence of water hammer.
- d) For the 1" model, friction loss with an inlet flow of 40 GPM shall not exceed 10.75 PSI in a globe orientation or 9.46 PSI in an angle orientation. For the 1.5" model, friction loss at 100 GPM shall not exceed 17.20 PSI in a globe orientation or 14.6 PSI in an angle orientation. For the 2" model, friction loss at 150 GPM shall not exceed 11.61 PSI in a globe orientation or 9.37 PSI in an angle orientation. For 3" model, friction loss at 300 GPM shall not exceed 10.23 PSI in a globe orientation or 9.31 PSI in an angle orientation. The burst pressure safety rating shall be no less than 450 PSI. When operating at 220 PSI, the valve must open or close in less than one minute without water hammer.
- e) The valve shall have a fully encapsulated plastic solenoid that features a captured hex plunger and spring. The solenoid shall have a removable retainer for servicing of the spring and plunger. The solenoid operator shall be suitable for 24 VAC, 50/60 Hz service with inrush of .12 A @ 50/60 Hz and holding of .10 A @ 50/60 Hz. The Spike Guard solenoid shall be capable of withstanding lightning surges in excess of 20,000 volts in the common and normal modes without failure. The valve shall have a built-in,

- Schrader-type valve for attaching a pressure gauge to verify downstream pressure.
- f) The EZReg pressure regulator shall be a dial design to permit visual setting of pressure with or without the use of a pressure gauge. The regulator shall be of a screw-in design and shall regulate precisely over a 5-100 PSI range with a maximum inlet pressure of 220 PSI. The regulator shall maintain the set pressure within ± 3 PSI (when inlet pressure is no less than 10 PSI greater than desired outlet pressure).
 - g) The pressure-regulating electric control valve shall be developed and manufactured by an ISO 9001-certified facility. The sprinkler shall be developed and manufactured by Hunter.

6) IRRIGATION CONTROLLER

- a) The Smart controller shall be manufactured under the brand name of Hunter to be installed or wired in accordance with manufacturer's published instructions and applicable codes.
- b) The controller shall be electronically controlled and have independent watering programs for each field that can run concurrently with each station's watering time independently variable from 1 minute to 10 hours in 1-minute increments. Controller shall also have programmable watering calendar options of 7-day specific, odd/even date or day interval options of 1 to 30 days. Clock shall have 365-day calendar for true unattended odd/even date programming. Controller shall have 16 total start times assignable to any program(s). Controller shall have a water budgeting feature that changes all stations within a program by a percentage from 10 to 200% in 10% increments without permanently altering the program. Controller shall have a "Valve Test" terminal. Controller shall have a programmable "Rain Off" up to 7 days.
- c) Programs shall be held in non-volatile memory throughout power failures of any duration. Controller shall have real-time battery (alkaline) backup capable of keeping accurate time during power failures up to 90 continuous days. Controller shall have a self-diagnostic electronic circuit breaker with valve-short detection that identifies and overrides an electrical malfunction.
- d) Programming shall be available in automatic, semi-automatic, single station timed manual and true manual operation. All programming shall be accomplished by use of a simple programming dial and selection buttons with a large LCD for ease of programming. Controller shall have start time stacking within each program, a pump start, programmable master valve and sensor hook up. Controller shall have modular design/enclosed electronics and remote-control compatibility.
- e) The controllers shall be enclosed in a weather-resistant plastic case with lock and key.
- f) Transformer input shall be 120 V ac, 60Hz (220/240 V ac, 50Hz). Transformer output shall be 24 V ac, 1.67 amps. Electronic circuit breaker shall be 1.25 amps minimum holding. Maximum output per station shall be 24 V ac, .5 amp. Maximum operating output to all valves shall be 24 V ac, 1.25 amp (including master valve). Controller shall have two-stage primary and secondary surge protection to resist damage from power surges and electrical storms.
- g) The controller shall include the wireless Smart irrigation control system and installed in accordance to local/national electrical codes and manufacturer's

published instructions.

- h) The Smart Wireless Irrigation system shall provide cloud-based irrigation control via website and/or mobile application. The irrigation system shall be connected via cord to the end user's internet router, and will wirelessly, via a 900 MHz bandwidth, communicate with a weather sensing monitor. The website and mobile application shall include, but not be limited to, the remote abilities to manually turn irrigation stations on or off, to advance between stations, to turn off all watering, to manually start a station test sequence and to start an irrigation program. The desired amount of manual station run time will be dependent upon which automatic controller listed above is used in the irrigation system. In addition, the website and mobile app shall provide the ability to upload and save a unique name and or picture in place of the default image and name to each individual zone in the irrigation system.

7) WEATHER SENSING

- a) The controller shall include a weather monitoring system that shall be manufactured under the Hunter brand name and installed with the irrigation controllers in accordance with manufacturer's instructions.
- b) The system shall consist of a remote weather sensor/transmitter that wirelessly communicates weather information to a receiver module which is plugged into the irrigation controller. The weather sensor shall have the capability of detecting the amount of rainfall, set by the user, which will initiate shutdown of irrigation. The weather sensor shall also have a device for monitoring solar exposure and another for air temperature. The weather sensor shall be able to transmit the data from each of the above devices to the receiver module for processing. The module shall input the processed information as commands to the irrigation controller. System capabilities shall include, but not be limited to, irrigation system shut down because of rain (precipitation level set by user), irrigation system shut down because of cold weather (temperature level set by user) and adjusting the irrigation controller's water budget percentage to the weather data for appropriate running time lengths for each zone or station.
- c) The receiver module shall allow the user to do, but not be limited to, the following: enter the postal zip code or latitude or longitude for the irrigation site, to select English or Spanish language support, to select the "dry out" time following system shut down because of rain, to select the cold weather shutoff temperature, to set the PIN number for reception from an optional remote device, to set a water restriction time, to establish communication with the weather sensor, to observe the outside air temperature, to observe the percentage of the hottest month's water budget currently in use, to observe the signal indicator and to bypass the weather sensor. Setup for the system shall require the controller to be programmed for the hottest time of year for the location. After establishment of communication between the module and the weather sensor, the weather sensor must be installed outside where it can receive full sun and unsheltered rain fall. Wireless signal range shall be a maximum of 1,000 feet uninterrupted line of sight. Objects or interference may decrease range. One weather sensor shall be capable of communicating with multiple receiver modules.
- d) The receiver module shall be powered by the controller. The weather sensor shall be

battery powered. Battery shall be easily accessible for replacement. The weather sensor shall be constructed of a polymer suitable for outdoor mount in full sun.

- e) The irrigation weather monitor shall be developed, manufactured, qualified, and released in the USA by an ISO 9001-certified facility. The sensor shall be manufactured by Hunter.

8) SOIL SENSOR

- a) The system shall include a wireless soil sensor that reduces water waste by continuously measuring moisture levels in the soil to help determine when to allow the controller to water, maximizing the system efficiency.
- b) The soil sensor requires no digging and communicates between the sensor probe and receiver wirelessly, with up to a 500' range (line of sight).
- c) The sensor will automatically detect soil type and adjust all calculations accordingly. The sensor shall provide freeze detection. Sensor receiver shall hook up to irrigation controller's sensor port (if available) or wired into the common wire. It shall have adjustable moisture threshold in 1% increments that allows the user to set the desired moisture level. Smart bypass overrides the sensor for a user-defined length of time (especially useful during system winterization) If the sensor is tripped while the irrigation controller is in the middle of a watering program, the optional "Cycle Delay" feature shall ensure all subsequent zones in the irrigation program have a chance to get watered before the sensor halts watering. Multi-color LED on the sensor probe shall indicate radio signal strength.
- d) The sensor probes shall have an ultra-slim 3/4" profile that allows it to avoid being damaged by mowing equipment. The extra-long stainless-steel electrodes shall measure over 4" down into the soil profile.
- e) Sensor probe's support stakes hold sensor firmly in place when installed.
- f) The sensor shall have easily replaceable batteries that last up to two years with alkaline batteries.

9) PIPE

- a) All mainline and lateral piping shall be poly vinyl chloride (PVC) pipe, having a minimum Working pressure rating of Class 200 (SDR 21). PVC pipe shall be virgin, high impact, conforming to ASTM dimensions and tolerances. Piping shall have integrated deep bell ends for solvent welding. PVC pipe shall be continuously and permanently marked with the manufacturer's name, material, size, and schedule or type. The pipe shall be capable of withstanding a long-term pressure test (1000 hours) of 420 P.S.I. and a quick term burst test of 630 P.S.I. PVC pipe shall be manufactured by Certainteed, J-M, IPEX, or approved equal.

10) FITTINGS

- a) Fittings shall be solvent weld for use with PVC pipe laterals and shall be Schedule 40 fittings produced from PVC Type 1, cell classification 12454 B. Threaded elbows, tees, reducers, and pipe nipples for lateral valve assemblies shall be PVC Schedule 80 fittings, Type 1, Grade 1. The fittings shall be listed by the National Safety Foundation for potable water services. The fittings shall be listed by IAPMO for water service and gas yard piping in appropriate types and sizes. PVC fittings shall meet the following codes and specifications: ASTM D2464 Threaded Schedule 80 fittings, ASTM D2466 Schedule

40 socket type fittings, ASTM-D2647 Schedule 80 socket type fittings.

11) SWING JOINT ASSEMBLIES

- a) All 1" swing joint assemblies for sprinkler heads shall be pre-assembled units manufactured of PVC material. The swing joint assembly shall be a "Standard" model and consist of a 12" long lay length nipple.
- b) 1" swing joint assemblies for quick coupler valves in the field shall be pre-assembled units manufactured of PVC and brass materials. The swing joint assembly shall consist of two 90-degree elbows, one 12" long riser with a 90-degree bend at one end, and a brass MPT nipple for connection to the valve. Quick coupler swing joints shall incorporate a quick coupler "lock" and stabilizer attachment.
- c) All connections shall consist of Buttress Threads and double "O" Rings providing leak free 360-degree adjustment. Wall construction shall be Schedule 80+ with special emphasis at inside corners on change of direction fittings.
- d) Swing joint assemblies shall be made from virgin PVC Type 1, Cell Classification 12454 B material listed for potable water conveyance by NFS. Working pressure shall be 200 psi combined static and surge.
- e) All PVC swing joints shall be factory assembled as manufactured by Hunter.

12) ISOLATION VALVES

- a) Mainline isolation gate valve shall be constructed with non-rising stem, solid wedge disc and screwed ends. The Class 125 valve shall have screw-in bonnet with integral seat and renewable seat and disc. The valve shall be rated for 200 PSI non-shock cold water, oil, or gas. The valve shall have a bronze wheeled handle and be model T-113 as manufactured by NIBCO, Inc.
- b) Isolation valves for electric control valves shall be 2" True Union Slo-Close valves assembled with union nuts molded from CPVC material. Valves shall have threaded ends connections with EPDM o-rings. The ball valve shall be manufactured by LASCO.

13) VALVE BOXES

- a) Valve boxes shall be constructed of HDPE (high-Density Polyethylene) with heavy-duty wall sections and have a tensile strength of 2700-4400 PSI. Boxes shall have T-lip lid design with secure snap fit and have the ability to be locked with a 3/8" hex head standard bolt with washer.
- b) The rectangular valve box shall be "standard" having a 12" x 17" opening x 12" deep. The boxes shall allow for reverse stack for deeper installations or utilize extension boxes in 6" increments.
- c) The round valve box for the quick coupling valves shall have a 7" opening x 9" deep. The valve boxes shall be manufactured by The Hunter Company.

14) WIRE

- a) Solenoid control and common wiring shall be a single, solid copper conductor; UL listed type utilizing low density high molecular weight polyethylene insulation, suitable for direct burial applications for operation up to 600 volts and conductor temperatures up to 60°C. Control and common wires shall be #14 AWG manufactured by Paige Electric spec P7079D.

15) WIRE SPLICES

- a) Wire splicing kits for single wire connections shall be Direct Burial kits consisting of sealant which shall not set up hard allowing splices to be reworked without cutting

wires.

- b) Direct Burial kits shall have an application temperature range of 32 to 120 degrees Fahrenheit and service 600 VAC maximum.
- c) DBR/Y kits shall allow connections of two to five #18 AWG, two #12 AWG or three #10 AWG solid or stranded copper wires.
- d) Splicing kits shall be manufactured by 3M Electrical Products Division or King Connections.

16) BACKFLOW PREVENTER

- a) Backflow preventer shall be subject to approval by the Colchester Water Department.

SECTION 3 IRRIGATION INSTALLATION

1) INSTALLATION REQUIREMENTS

- a) The word "piping" in these specifications means pipe, fittings, nipples, and valves, and shall be considered as such in this installation.
- b) The arrangements, positions, and connection of piping, drains, valves, and the like indicated on the plan, shall be followed as closely as possible, but the right is reserved by the Town to change locations and elevations to accommodate conditions which may arise during the progress of the Work prior to installation without additional compensation for such changes. The responsibility for accurately laying out the Work and coordinating the installation with other trades rests with the CONTRACTOR. Should it be found that any Work is laid out so that interference will occur, the CONTRACTOR shall report that to the Town before commencing Work.

2) STAKING

- a) The CONTRACTOR, Designer and Town are to stake out all proposed pipe and wire routes, sprinklers, valves, and controller locations in accordance with locations shown on the plan. All staking will be done prior to commencement of Work in any area of the installation. The CONTRACTOR shall furnish all supplies, equipment, and personnel necessary for the staking of the Work.
- b) The CONTRACTOR shall give a minimum of three (3) days' notice to the Town of the day he wishes to stake a particular section of the Work and shall be responsible for arranging the staking with the Designer.

3) EXCAVATION & PIPE INSTALLATION

- a) The CONTRACTOR shall do all excavating, vibratory plowing, backfilling, and compaction required for the proper installation of the Work according to standard acceptable industry practices.
- b) Pipe routing shall be in accordance with the plan, however, the Town shall have the right to change the route and/or depth of the pipe where rock or other obstacles may interfere with the intended path.
- c) The CONTRACTOR, with approval of the Town, also may adjust the location of any pipeline and/or depth to avoid large rock or other obstacles, provided that the adjustment does not affect the performance of the system. In no event shall such changes affect the cost of the Work except where those changes greatly alter the quantity of materials and/or labor.

- d) The minimum trench width shall provide for a minimum space of 4" on each side of the piping. Trench widths shall be held close to these minimums to avoid excess earth loads on piping.
- e) Mainline piping shall have a minimum cover of 20". Trenches shall be backfilled with rock-free soil completely surrounding the pipe. Any trenches that are in extremely rock-filled soil, or if ledge is present, shall require the trench to be back-filled with a minimum of 4" of sand surrounding the pipe. The Town shall supply all sand required for backfilling.
- f) Lateral piping shall have a cover of 16". The use of a vibratory plow for pipe installation shall only be allowed as long as minimum cover is maintained and there is no evidence of damage to the pipe.
- g) The CONTRACTOR must provide effective protection at all times to prevent sand, rubbish, or any other debris from entering the piping. When Work is stopped at night, or at any other time, the ends of the piping must be closed and properly secured. Sidewalks, cart paths and driveways shall be clear of project debris and equipment at all times and barricades and/or tape shall be installed around any trenches left open.
- h) When backfilling, all backfill material shall be free from rock, large stone, or other unsuitable substances to prevent damage to piping and wiring. Backfilling of trenches containing plastic pipe shall be done when the pipe is cool to avoid excessive contraction in cold weather. All backfill material will be compacted in 6" layers as it is brought up to finish grade so as to ensure that no settling results.
- i) The CONTRACTOR shall be responsible for repairing all depressions or damage cause by their equipment as determined by the Town.
- j) Pipe shall be installed strictly in accordance with recommendations of the manufacturer, including leveling of trench bottoms, bedding of pipe, and securely thrusting any fittings to change direction of gasketed piping.

4) ROAD AND WALK CROSSINGS

- a) Any cutting or breaking of sidewalks, paths, and/or roads shall be performed by the CONTRACTOR with necessary re- paving as part of the Contract cost. Permission to cut or break sidewalks, cart paths, and/or roads shall be obtained from the Town. Hydraulic driving or drilling under asphalt or concrete paving must be approved by the Town.
- b) All piping under roads shall be installed in piping sleeves double the nominal pipe size. Joint restraints shall be used at any pipe bell connections that are within the sleeve. All wires under roads shall be installed in electrical conduit sized for the number of wires that are required to pass through.

5) THRUST BLOCKING

- a) Thrust block all PVC fittings and/or piping in accordance with the pipe manufacturer's recommendations.
- b) All thrust blocks shall be constructed of concrete as per PVC pipe manufacturer's recommendations. The area of the bearing surface of the thrust block shall meet the

pipe manufacturer's specifications based on the fitting and soil involved. All thrust blocks must bear against undisturbed soil.

- c) Precast solid concrete blocks are acceptable for 2" and smaller PVC pipe provided bearing surface meets above requirements. Approved joint restraints may be accepted in lieu of blocks. All materials required for thrust blocking shall be provided by the CONTRACTOR.

6) TRENCH SETTLEMENT

- a) During the Work period, it shall be the CONTRACTOR's responsibility to refill any trenches that may have settled due to incomplete compaction.
- b) If within one year from completion date, major settlement due to improper compaction occurs, and an adjustment in pipe, sprinkler heads, topsoil and seed, or paving is necessary to bring the system to the proper level of the permanent grade, the CONTRACTOR, as part of the Work under this Contract, shall make said adjustments without extra cost to the Town. It will not be the CONTRACTOR's responsibility to re-compact trenches that have been eroded by natural heavy rainfall.

7) ELECTRICAL & WIRE INSTALLATION

- a) The CONTRACTOR will be responsible to have connections made to the building electrical system as is required for the proper operation of the automatic control system. Sub-contracting for an electrician to perform any wiring required by local code, shall be the CONTRACTOR's responsibility.
- b) Wire shall be installed in the same trenches as piping wherever possible and laid on the side of the pipe. All wires shall be bundled or tied together every 8 to 10 feet with electrical tape or tie straps. Wire shall be installed with a minimum slack of 18 inches at all 90-degree bends and at all solenoid connections.
- c) All control circuitry passing through the wall of a building or beneath a road or cart path shall be installed in a suitable electrical conduit.
- d) The jointing of all underground wires shall be by the use of wire nuts covered with Scotchlok or DBR/Y waterproof connections per installation instructions provided by the manufacturer. Under no circumstances shall wire connections, outside of the controller, be made without the use of a waterproof connector.

8) VALVE BOX INSTALLATION

- a) Valve boxes shall be installed with adequate space for operation and service of equipment in the box. A minimum of 4" of pea stone or gravel shall be placed under each box for both drainage and leveling of the box. Gravel shall be furnished by the CONTRACTOR.
- b) All valve boxes shall be mounted flush to grade. Extensions shall be used as required for proper installation and setting. Valve boxes shall be installed so that position of box will allow full open and full close of shut-off valves.

9) SPRINKLER AND VALVE INSTALLATION

- a) Sprinklers shall be connected to piping by installation of pre-assembled PVC swing joint assemblies. The swing joint assemblies shall be factory pre-assembled and installed so that the assembly and sprinkler are not directly over the piping or service

tee. If backfill material contains rocks or stones, or is comprised of heavy clay, all swing joint assemblies and sprinklers attached shall be completely backfilled with sand to within 3" of final grade.

- b) Manual shut-off valves for sprinklers and electric valves shall be installed in the closed position and shall not be opened until main line piping has been pressurized and properly flushed through quick coupler valves or drains.
- c) Quick coupling valves shall be installed on pre-assembled PVC swing joint assemblies.

10) CLEANING THE PREMISES

- a) Clean up shall be performed as each portion of the Work progresses. Refuse, rubbish, and excess soil shall be removed from the site. Upon completion of the job, the CONTRACTOR shall clean up all debris caused by his Work and leave the job site in a neat and clean condition. All sidewalks and paving shall be broomed or washed down. All debris removed from the job will be taken away from the premises.

SECTION 4 PROJECT COMPLETION

1) TESTING THE SYSTEM

- a) Work included under this Contract includes all tests required under laws, rules, and regulations, and shall be made in accordance therewith.
- b) The entire system shall be tested at the normal system Working pressure and upon visual inspection of the ground, should any leaks be found, they shall be promptly repaired. The line shall then be retested until satisfactory.
- c) The Town and other required authorities shall be notified at least 48 hours in advance of all tests and all tests shall be conducted to their satisfaction.
- d) All irrigation lines shall be tested at a maximum system pressure for a period of at least 24 hours, with no loss of pressure or detected water flow before final approval by the Town has been given.

2) ADJUSTING AND BALANCING THE SYSTEM

- a) All areas of the irrigation system shall be inspected to ensure proper coverage and to ensure that proper sprinkler location has been accomplished. If necessary, the CONTRACTOR shall adjust or change sprinkler nozzles to correct any mislocated products.

3) AS-BUILT DRAWING

- a) During the installation, the CONTRACTOR shall maintain an updated as-built drawing of the system. The as-built is intended to provide an accurate record of the actual location of the installed system components.
- b) After completion of the entire installation, the CONTRACTOR shall furnish the as-built drawing showing all piping, wiring, sprinkler heads, valves, controllers, drains, etc., to scale with dimensions where required. All splices on 120/240-volt power, communication, and 24 volt common and control wiring shall be located on as-built plan with precise and detailed measurements indicated.

4) INSTRUCTIONS

- a) After completion and testing of the system, the CONTRACTOR and/or the equipment distributor will instruct the Town in proper operation and maintenance of the system.

- b) The CONTRACTOR and/or the equipment distributor shall supply all manufacturer's Town's Manuals and Service Manuals to the Town.

5) SERVICE AND GUARANTEE

- a) The CONTRACTOR shall submit a single guarantee that all portions of the Work are in accordance with the Contract requirements and providing for maintenance of the system. The CONTRACTOR shall guarantee all Work against faulty and improper Workmanship for a period of one (1) year from date of final acceptance by the Town, except where guarantees or warranties for longer terms are specified herein. The CONTRACTOR shall correct any deficiencies that occur during the guarantee period at no additional cost to the Town, all to the satisfaction of the Town. The CONTRACTOR shall obtain similar guarantees from Subcontractors.

6) WINTER BLOWOUT

- a) The CONTRACTOR shall provide service necessary to maintain the system for a period of one year from the date of final acceptance by the Town. This service shall include winterizing the system with compressed air and providing all Work and equipment necessary to properly start the system the following spring.

7) CONCLUSION

- a) It has been our purpose in preparing these specifications to supplement the plans and to provide a sprinkler system that is complete in every detail.
- b) It has not been our purpose in preparing these plans and specifications to make omissions and/or errors. Such omissions and/or errors, in either the plans or specifications, shall be corrected when called to our attention. Discrepancies of any sort shall not be taken advantage of, as harmony shall be preserved at all times so that construction can be pursued efficiently and rapidly in the letter and spirit of these specifications. The true intent and meaning of the same is that all Work of every kind that may be necessary for the complete job be done. This is implied, although the same may not be specifically expressed.

